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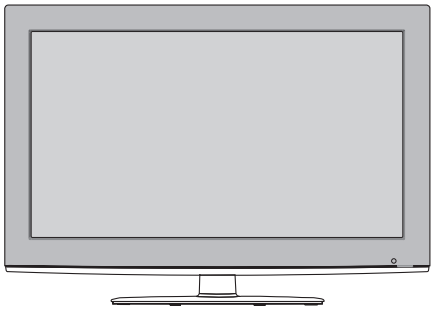
LED LCD TV
SERVICE MANUAL

CHASSIS : LA01U

MODEL : 32LV2500 **32LV2500-UA**

32LV2520 **32LV2520-UC**

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

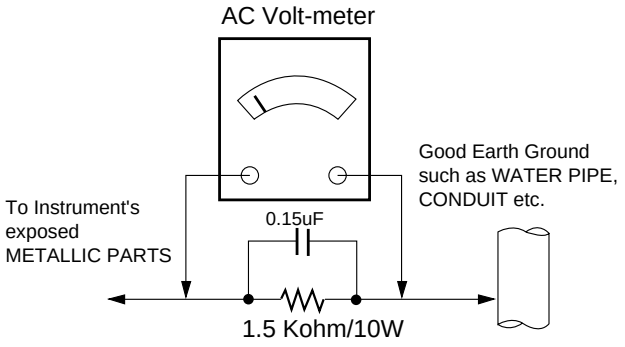
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices.* Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This spec sheet is applied LCD TV with LA01U chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

1) Temperature: 25 ºC ± 5 ºC
2) Relative Humidity: 65 ± 10 %
3) Power Voltage : Standard input voltage(100-240V~, 50/60Hz)
   * Standard Voltage of each product is marked by models
4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
5) The receiver must be operated for about 5 minutes prior to the adjustment.

3. Test method

1) Performance: LGE TV test method followed
2) Demanded other specification
   - Safety : UL, CSA, IEC specification
   - EMC: FCC, ICES, IEC specification

4. General Specification(TV)

No	Item	Specification		Remark
1	Receivable System	1) ATSC / NTSC-M		
2	Available Channel	1) VHF : 02 ~ 13 2) UHF : 14 ~ 69 3) DTV : 02 ~ 69 4) CATV : 01 ~ 135 5) CADTV : 01 ~ 135		
3	Input Voltage	1) AC 100 - 240V~ 50/60Hz		Mark : 110V, 60Hz (N.Ame
4	Market	North America		
5	Screen Size	32 inch Wide (1920x1080)	FHD + 60Hz	32LV3500-UA / 32LV3520-UC
		37 inch Wide (1920x1080)	FHD + 60Hz	37LV3500-UA
		42 inch Wide (1920x1080)	FHD + 60Hz	42LV3500-UA / 42LV3520-UC
		47 inch Wide (1920x1080)	FHD + 60Hz	47LV3500-UA
		55 inch Wide (1920x1080)	FHD + 60Hz	55LV3500-UA
		32 inch Wide (1366x768)	HD + 60Hz	32LV2500-UA
6	Aspect Ratio	16:9		
7	Tuning System	FS		
8	LCD Module	T315HW07-V8	AUO	32LV3500-UA / 32LV3520-UC
		LC320EUN-SDV2	LGD	32LV3500-UA / 32LV3520-UC
		T370HW05-V1	AUO	37LV3500-UA
		V420H20-LE5	CMI	42LV3500-UA / 42LV3520-UC
		T420HW08-V1	AUO	42LV3500-UA / 42LV3520-UC
		LC420EUN-SDV3	LGD	42LV3500-UA / 42LV3520-UC
		LC470EUE-SDV1	LGD	47LV3500-UA
		LC550EUF-SDA1	LGD	55LV3500-UA
		LC320EXN-SDA1	LGD	32LV2500-UA
		T315XW06-V3	AUO	32LV2500-UA
		T546HW04-V0	AUO	55LV3500-UA
		LC370EUN-SDV2	LGD	37LV3500-UA
		V315H3-LE7	CMI	32LV3500-UA / 32LV3520-UC
9	Operating Environment	Temp : 0 ~ 40 deg Humidity : ~ 80 %		
10	Storage Environment	Temp : -20 ~ 60 deg Humidity : -85 %		

5. Chrominance & Luminance(Edge LED models)

No.	Item			Min	Typ	Max	Unit		Remarks
1	White brightness			288	360		cd/m²	AUO	32LV3500-UA / 32LV3520-UC
	(10% decline of Module spec')			288	360			AUO	37LV3500-UA
	(20% decline of Module spec': only 47LV3500)			270	360			CMI	42LV3500-UA / 42LV3520-UC
				288	360			AUO	42LV3500-UA / 42LV3520-UC
				232	288			LGD	47LV3500-UA
				288	360			LGD	55LV3500-UA
				324	415			AUO	55LV3500-UA
				261	324			LGD	37LV3500-UA
				324	415			CMI	32LV3500-UA / 32LV3520-UC
				250	315			AUO	32LV2500-UA
				270	342			LGD	32LV2500-UA
				261	324			LGD	32LV3500-UA / 32LV3520-UC
				261	324			LGD	42LV3500-UA / 42LV3520-UC
2	Luminance uniformity			75			%		
3	Color coordinate	RED	X	Typ.	0.630	Typ.			32LV3500-UA (AUO)
	(Default)		Y	-0.03	0.330	+0.03			32LV3520-UC (AUO)
		GREEN	X		0.320				
			Y		0.620				
		BLUE	X		0.150				
			Y		0.040				
		WHITE	X		0.280				
			Y		0.290				
		RED	X	Typ.	0.640	Typ.			37LV3500-UA (AUO)
			Y	-0.03	0.330	+0.03			
		GREEN	X		0.320				
			Y		0.620				
		BLUE	X		0.150				
			Y		0.050				
		WHITE	X		0.280				
			Y		0.290				
		RED	X	Typ.	0.644	Typ.			42LV3500-UA (CMI)
			Y	-0.03	0.331	+0.03			
		GREEN	X		0.295				
			Y		0.617				
		BLUE	X		0.148				
			Y		0.053				
		WHITE	X		0.280				
			Y		0.290				
		RED	X	Typ.	0.630	Typ.			42LV3500-UA (AUO)
			Y	-0.03	0.330	+0.03			42LV3520-UC (AUO)
		GREEN	X		0.320				
			Y		0.620				
		BLUE	X		0.150				
			Y		0.040				
		WHITE	X		0.280				
			Y		0.290				

No.	Item			Min	Typ	Max	Unit		Remarks
		RED	X	Typ.	0.648	Typ.			47LV3500-UA (LGD)
			Y	-0.03	0.333	+0.03			
		GREEN	X		0.308				
			Y		0.600				
		BLUE	X		0.149				
			Y		0.059				
		WHITE	X		0.279				
			Y		0.292				
		RED	X	Typ.	0.649	Typ.			55LV3500-UA (LGD)
			Y	-0.03	0.332	+0.03			
		GREEN	X		0.307				
			Y		0.595				
		BLUE	X		0.149				
			Y		0.059				
		WHITE	X		0.279				
			Y		0.292				
		RED	X	Typ.	0.640	Typ.			55LV3500-UA (AUO)
			Y	-0.03	0.330	+0.03			
		GREEN	X		0.300				
			Y		0.620				
		BLUE	X		0.150				
			Y		0.050				
		WHITE	X		0.280				
			Y		0.290				
		RED	X	Typ.	0.637	Typ.			37LV3500-UA (LGD)
			Y	-0.03	0.341	+0.03			
		GREEN	X		0.319				
			Y		0.605				
		BLUE	X		0.154				
			Y		0.051				
		WHITE	X		0.279				
			Y		0.292				
		RED	X	Typ.	0.637	Typ.			32LV3500-UA (LGD) 32LV3520-UC (LGD)
			Y	-0.03	0.341	+0.03			
		GREEN	X		0.320				
			Y		0.606				
		BLUE	X		0.152				
			Y		0.055				
		WHITE	X		0.279				
			Y		0.292				
		RED	X	Typ.	0.637	Typ.			42LV3500-UA (LGD) 42LV3520-UC (LGD)
			Y	-0.03	0.341	+0.03			
		GREEN	X		0.325				
			Y		0.600				
		BLUE	X		0.152				
			Y		0.051				
		WHITE	X		0.279				
			Y		0.292				

No.	Item			Min	Typ	Max	Unit		Remarks	
		RED	X	Typ.	0.635	Typ.			32LV3500-UA (CMI)	
			Y	-0.03	0.323	+0.03				
		GREEN	X		0.288					
			Y		0.600					
		BLUE	X		0.148					
			Y		0.050					
		WHITE	X		0.280					
			Y		0.290					
		RED	X	Typ.	TBD	Typ.			32LV2500-UA (LGD)	
			Y	-0.03	TBD	+0.03				
		GREEN	X		TBD					
			Y		TBD					
		BLUE	X		TBD					
			Y		TBD					
		WHITE	X		0.279					
			Y		0.292					
		RED	X	Typ.	0.640	Typ.			32LV2500-UA (AUO)	
			Y	-0.03	0.330	+0.03				
		GREEN	X		0.310					
			Y		0.620					
		BLUE	X		0.150					
			Y		0.060					
		WHITE	X		0.280					
			Y		0.290					
4	Color coordinate uniformity								N/A	
5	Contrast ratio (Module)			3200	4000				32/37/42LV3500(20)-UA(C) (AUO)	
				4200	6000				42LV3500-UA (CMI)	
				1100	1600				55LV3500-UA (LGD)	
				2400	3000				32LV2500-UA (AUO)	
				3750	5000				32LV2500-UA (CMI)	
				1000	1400				47LV3500-UA (LGD)	
				3200	4000				55LV3500-UA (AUO)	
				1100	1600				37LV3500-UA (LGD)	
				2400	3000				32LV3500-UA (AUO)	
				1000	1400				32LV3500(20)-UA(C) (LGD)	
				1000	1400				42LV3500(20)-UA(C) (LGD)	
	Contrast ratio (DCR)			2,000,000:1 800,000:1		3,000,000:1 1,000,000:1	Only	All 32LV2500	Global Dimming (Normal Dimming)	
6	Color Temperature	COOL		0.254 0.258	0.269 0.273	0.284 0.288		13000K	** The W/B Tolerance is ±0.015 for picture quality by DQA.	
		MEDIUM		0.270 0.278	0.285 0.293	0.300 0.308		9300K		
		WARM		0.298 0.314	0.313 0.329	0.324 0.344		6500K		
7	Response time			3	 6.5 6	 9	ms	Only	55LV3500 32LV2500 32LV2500	N/A AUO LGD

6. Component Video Input (Y, C_B/P_B, C_R/P_R)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed
1.	720*480	15.73	60	13.5135	SDTV ,DVD 480I
2.	720*480	15.73	59.94	13.5	SDTV ,DVD 480I
3.	720*480	31.50	60	27.027	SDTV 480P
4.	720*480	31.47	59.94	27.0	SDTV 480P
5.	1280*720	45.00	60.00	74.25	HDTV 720P
6.	1280*720	44.96	59.94	74.176	HDTV 720P
7.	1920*1080	33.75	60.00	74.25	HDTV 1080I
8.	1920*1080	33.72	59.94	74.176	HDTV 1080I
9.	1920*1080	67.500	60	148.50	HDTV 1080P
10.	1920*1080	67.432	59.94	148.352	HDTV 1080P
11.	1920*1080	27.000	24.000	74.25	HDTV 1080P
12.	1920*1080	26.97	23.976	74.176	HDTV 1080P
13.	1920*1080	33.75	30.000	74.25	HDTV 1080P
14.	1920*1080	33.71	29.97	740176	HDTV 1080P

7. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock		Proposed	
	PC					DDC	
1.	640*350	31.468	70.09	25.17		EGA	X
2.	720*400	31.469	70.08	28.32		DOS	O
3.	640*480	31.469	59.94	25.17		VESA(VGA)	O
4.	800*600	37.879	60.31	40.00		VESA(SVGA)	O
5.	1024*768	48.363	60.00	65.00		VESA(XGA)	O
6.	1280*768	47.776	59.870	79.5		CVT(WXGA)	X
7.	1360*768	47.712	60.015	85.50		VESA(WXGA)	X
8.	1280*1024	63.981	60.020	108.00	Except LV2500	VESA(SXGA)	O
9.	1600*1200	75.00	60.00	162	Except LV2500	VESA (UXGA)	X
10.	1920*1080	66.587	59.934	148.5	Except LV2500	HDTV 1080P	O

8. HDMI input (PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock		Proposed	
	PC					DDC	
1.	640*350	31.468	70.09	25.17		EGA	X
2.	720*400	31.469	70.08	28.32		DOS	O
3.	640*480	31.469	59.94	25.17		VESA(VGA)	X
4.	800*600	37.879	60.31	40.00		VESA(SVGA)	O
5.	1024*768	48.363	60.00	65.00		VESA(XGA)	O
6.	1280*768	47.776	59.870	79.5		CVT(WXGA)	X
7.	1360*768	47.712	60.015	85.50		VESA (WXGA)	O
8.	1280*1024	63.981	60.020	108.00	Except LV2500	VESA (SXGA)	O
9.	1600*1200	75.00	60.00	162	Except LV2500	VESA (UXGA)	X
10.	1920*1080	67.500	60.000	148.50	Except LV2500	HDTV 1080P	O
	DTV						
1	720*480	31.47	60	27.027		SDTV 480P	O
2	720*480	31.47	59.94	27.00		SDTV 480P	O
3	1280*720	45.00	60.00	74.25		HDTV 720P	O
4	1280*720	44.96	59.94	74.176		HDTV 720P	O
5	1920*1080	33.75	60.00	74.25		HDTV 1080I	O
6	1920*1080	33.72	59.94	74.176		HDTV 1080I	O
7	1920*1080	67.500	60	148.50		HDTV 1080P	O
8	1920*1080	67.432	59.939	148.352		HDTV 1080P	O
9	1920*1080	27.000	24.000	74.25		HDTV 1080P	O
10	1920*1080	26.97	23.976	74.176		HDTV 1080P	O
11	1920*1080	33.75	30.000	74.25		HDTV 1080P	O
12	1920*1080	33.71	29.97	74.176		HDTV 1080P	O

ADJUSTMENT INSTRUCTION

1. Application range

This spec. sheet applies to LA01U / LA01T / LA01S Chassis applied LED LCD TV all models manufactured in TV factory.

2. Specification

2.1 Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.

2.2 Adjustment must be done in the correct order.

2.3 The adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity

2.4 The input voltage of the receiver must keep 100~240V~, 50/60Hz.

2.5 At first Worker must turn on the SET by using Power Only key.

2.5 The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15.

In case of keeping module is in the circumstance of 0°C, it should be placed in the circumstance of above 15°C for 2 hours

In case of keeping module is in the circumstance of below -20°C, it should be placed in the circumstance of above 15°C for 3 hours.

• Caution

When a still image is displayed for 20 minutes or longer (especially where W/B scale is strong. Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area.

3. Adjustment items

3.1 Board Level Adjustment

(1) ADC adjustment: Component 480i, 1080p / RGB-PC 1080p
(2) EDID downloads for HDMI and RGB-PC

• Remark
- Above adjustment items can be also performed in Final Assembly if needed. Adjustment items in both PCBA and final assembly stages can be checked by using the INSTART Menu 1.ADJUST CHECK.

3.2 Final Assembly adjustment

(1) White Balance adjustment
(2) RS-232C functionality check
(3) Factory Option setting per destination
(4) Shipment mode setting (IN-STOP)

3.3 Etc

(1) Ship-out mode
(2) Service Option Default
(3) USB Download(S/W Update, Option, Service only)
(4) ISP Download (Optional)

4. Board Level Adjustment

4.1. ADC Adjustment

4.1.1. Overview

• ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation.

4.1.2. Equipment & Condition

1) Jig (RS-232C protocol)
2) Inner Pattern
- Resolution : 1080p (Inner Pattern)
- Resolution : 1024*768 RGB (Inner Pattern)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level : 0.7±0.1 Vp-p

4.1.3. Adjustment

4.1.3.1 Adjustment method

• Using RS-232, adjust items listed in 3.1 in the other shown in “4.1.3.3”

4.1.3.2 Adj. protocol

Protocol	Command	SetACK
Enter adj. mode	aa 00 00	a 00 OK00x
Source change	xb 00 40 xb 00 60	b 00 OK40x (Adjust 480i/1080p Comp1) b 00 OK60x (Adjust 1920*1080 RGB)
Begin adj.	ad 00 10	
Return adj. result		OKx (Case of Success) NGx (Case of Fail)
Read adj. data	(main) ad 00 20 (sub) ad 00 21	(main) 0000000000000000000000000007c007b006dx (Sub) 0000000700000000000000000007c00830077x
Confirm adj.	ad 00 99	NG 03 00x (Fail) NG 03 01x (Fail) NG 03 02x (Fail) OK 03 03x (Success)
End adj.	aa 00 90	a 00 OK90x

Ref.) ADC Adj. RS232C Protocol_Ver1.0

4.1.3.3. Adj. order

• aa 00 00 [Enter ADC adj. mode]
• xb 00 40 [Change input source to Component1(1080i)]
• ad 00 10 [Adjust 480i Comp1]
• xb 00 60 [Change input source to RGB(1024*768)]
• ad 00 10 [Adjust 1024*768 RGB]
• ad 00 90 End adj.

Ref) ADC adj. RS232C Protocol_Ver1.0

4.2. EDID/DDC Download

4.2.1 Overview

- It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of “Plug and Play”.

4.2.2 Equipment

- Since embedded EDID data is used, EDID download JIG, HDMI cable and D-sub cable are not need.
- Adjust remocon.

4.2.3 Download method

1) Press Adj. key on the Adj. R/C,
2) Select EDID D/L menu.
3) By pressing Enter key, EDID download will begin
4) If Download is successful, OK is display, but If Download is failure, NG is displayed.
5) If Download is failure, Re-try downloads.

* Caution) When EDID Download, must remove RGB/HDMI Cable.

4.2.4 EDID DATA

1) North America

HDMI1-EDID (C/S : 03CC)

EDID Block 0

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

Block1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	CC

HDMI2-EDID (C/S : 03BC)

Block0

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

Block1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	20	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	BC

HDMI3-EDID (C/S : 03AC)

Block0

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

Block1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	30	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	AC

RGB-EDID (C/S : 1C)

Block0

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	68	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	1C

5. Final Assembly Adjustment

5.1. White Balance Adjustment

5.1.1. Overview

5.1.1.1. W/B adj. Objective & How-it-works

(1) Objective: To reduce each Panel's W/B deviation

(2) How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.

(3) Adj. condition: normal temperature

1) Surrounding Temperature: 25±5°C

2) Warm-up time: About 5 Min

3) Surrounding Humidity: 20% ~ 80%

5.1.2. Equipment

(1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14)

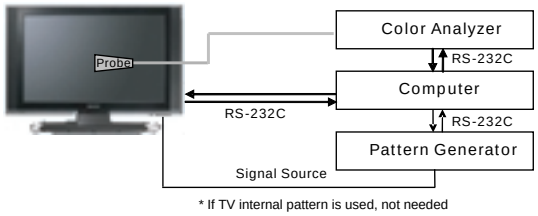
(2) Adj. Computer (During auto adj., RS-232C protocol is needed)

(3) Adjust Remocon

(4) Video Signal Generator MSPG-925F 720p/204-Gray (Model: 217, Pattern: 49)

• Color Analyzer Matrix should be calibrated using CS-1000

5.1.3. Equipment connection



Connection Diagram of Automatic Adjustment

5.1.4. Adjustment Command (Protocol)

(1) RS-232C Command used during auto-adj.

RS-232C COMMAND [CMD	ID	DATA]	Explanation
Wb	00	00	Begin White Balance adj.
Wb	00	ff	End White Balance adj. (internal pattern disappears)

Ex) wb 00 00 -> Begin white balance auto-adj.
wb 00 10 -> Gain adj.
ja 00 ff -> Adj. data
jb 00 c0
...
...
wb 00 1f -> Gain adj. complete
*(wb 00 20(start), wb 00 2f(end)) -> Off-set adj.
wb 00 ff ->End white balance auto adj.

(2) Adj. Map

Applied Model :
32/37/42/47/55LV3500-UA , 32/26/22/19LV2500-UA , 32/42/47LV3500-NA, 42/47LV4500-NA, 42/47/55LW4500-NA

Adj.	item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	172
	G Gain	j	h	00	C0	172
	B Gain	j	i	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Medium	R Gain	j	a	00	C0	192
	G Gain	j	b	00	C0	192
	B Gain	j	c	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Warm	R Gain	j	d	00	C0	192
	G Gain	j	e	00	C0	192
	B Gain	j	f	00	C0	172
	R Cut					64
	G Cut					64
	B Cut					64

5.1.5. Adjustment method

5.1.5.1 Auto WB calibration

1) Set TV in adj. mode using POWER ONLY (P-ONLY) key

2) Zero calibrate probe then place it on the center of the Display

3) Connect Cable(RS-232C)

4) Select mode in adj. Program and begin adj.

5) When adj. is complete (OK Sing), check adj. status pre mode (Cool, Medium, Warm)

6) Remove probe and RS-232C cable to complete adj.

• W/B Adj. must begin as start command "wb 00 00" , and finish as end command "wb 00 ff", and Adj. offset if need

5.1.5.2 Manual adj. method

1) Set TV in Adj. mode using POWER ON

2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface..

3) Press ADJ key -> EZ adjust using adj. R/C 6. White-Balance then press the cursor to the right (KEY G). (When KEY(G) is pressed 204 Gray(80IRE) internal pattern will be displayed)

4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.

5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

• If internal pattern is not available, use RF input. In EZ Adj. menu 6.White Balance, you can select one of 2 Test-pattern: ON, OFF. Default is inner(ON). By selecting OFF, you can adjust using RF signal in 204 Gray pattern.

• Adj. condition and cautionary items

1) Lighting condition in surrounding area
Surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.

2) Probe location : Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)

3) Aging time

- After Aging Start, Keep the Power ON status during 5 Minutes.
- In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

5.1.6 Reference (White Balance Adj. coordinate and color temperature)

(1) Luminance: 204 Gray, 80IRE

(2) Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Color Coordination		Temp	ΔUV
	x	y		
COOL	0.269	0.273	13000K	0.0000
MEDIUM	0.285	0.293	9300K	0.0000
WARM	0.313	0.329	6500K	0.0000

• Standard color coordinate and temperature using CA-210(CH 9)

Mode	Color Coordination		Temp	ΔUV
	x	y		
COOL	0.269±0.002	0.273±0.002	13000K	0.0000
MEDIUM	0.285±0.002	0.293±0.002	9300K	0.0000
WARM	0.313+0.002	0.329±0.002	6500K	0.0000

• Standard color coordinate and temperature using CA-210(CH 14) – by aging time
Edge LED models (applied only LGD Module)

GP2G	Aging time (Min)	Cool		Medium		Warm	
		x	y	x	y	x	y
		269	273	285	293	313	329
1	0-2	276	285	292	305	315	334
2	3-5	274	282	290	302	313	332
3	6-9	273	280	289	300	312	330
4	10-19	272	278	288	298	311	328
5	20-35	271	276	287	296	310	326
6	36-49	269	274	286	294	309	324
7	50-79	269	273	286	293	308	323
8	Over 80	269	273	285	293	308	323

5.2 HDCP (High-Bandwidth Digital Contents Protection) SETTING

5.3 Option selection per country

5.3.1 Overview

• Option selection is only done for models in Non-USA North America due to rating

• Applied model: LA01U Chassis applied None USA model(CANADA, MEXICO)

5.3.2 Method

(1) Press ADJ key on the Adj. R/C, and then select Country Group Menu

(2) Depending on destination, select KR or US, then on the lower Country option, select US, CA, MX. Selection is done using +, - KEY

5.4 Tool Option selection

• Method: Press Adj. key on the Adj. R/C, then select Tool option.

Model	Tool 1	Tool 2	Tool 3	Tool 4	Tool 5	Menu
32LV3500(20)-UA(B)	18280	19478	55337	2844	16738	AUO
37LV3500-UA	22376	19478	55338	2844	16738	AUO
42LV3500(20)-UA(B)	26472	19478	55338	2844	16736	AUO
42LV3500-UA	26468	19478	55337	2844	16425	CMI
47LV3500-UA	34656	19478	55337	2844	16640	LGD
55LV3500-UA	46944	19478	55338	2844	24832	LGD
32LV2500-UA	18213	18954	55332	2829	16425	CMI
32LV2500-UA	18216	19478	55337	2844	16738	AUO
42LV4500-NA	26406	19478	55337	2840	24576	LGD
47LV4500-NA	34688	19478	55337	2840	24576	LGD
42LW4500-NA	26528	19478	55337	2968	8192	LGD
47LW4500-NA	34720	19478	55337	2968	8192	LGD
55LW4500-NA	47008	19478	55337	2968	8192	LGD
47LV3500(1,20)-NA(B,C)	34656	19478	55337	2840	16384	LGD
42LV3500(1,20)-NA(B,C)	26464	19478	55337	2840	16416	LGD
32LV3500-NA	18272	19478	55337	2840	16418	LGD
26LV2500-UA	14120	18954	55338	2844	16640	AUO
22LV2500(20)-UA(C)	10024	18954	55337	2844	16640	AUO
19LV2500(20)-UA(C)	5928	18954	55337	2844	16640	AUO
37LV3500-UA	22368	19478	55337	2844	16674	LGD
55LV3500(1,20)-NA(B,C)	46944	19478	55337	2840	24576	LGD
32LV3500(20)-UA(B)	18272	19478	55339	2844	16418	LGD
42LV3500(20)-UA(B)	26464	19478	55339	2844	16672	LGD
32LV3500(1,20)-NA(B,C)	18288	19478	55337	2840	16416	IPS-A
42LV3400-NA	26592	9226	53289	2840	16416	LGD
32LV3400-NA	18400	9226	53289	2332	16418	LGD
32LV2500-UA	18208	19478	55337	2844	16674	LGD
26LV2500(20)-UA(C)	14112	18954	55337	2844	16640	LGD

6. GND and Hi-pot Test

6.1. Method

6.1.1. GND & HI-POT auto-check preparation

(1) Check the POWER CABLE and SIGNAL CABE insertion condition

6.1.2. GND & HI-POT auto-check

(1) Pallet moves in the station. (POWER CORD / AV CORD is tightly inserted)

(2) Connect the AV JACK Tester.

(3) Controller (GWS103-4) on.

(4) GND Test (Auto)

- If Test is failed, Buzzer operates.
- If Test is passed, execute next process (Hi-pot test). (Remove A/V CORD from A/V JACK BOX)

(5) HI-POT test (Auto)

- If Test is failed, Buzzer operates.
- If Test is passed, GOOD Lamp on and move to next process automatically.

6.2. Checkpoint

• TEST voltage
- GND: 1.5KV/min at 100mA
- SIGNAL: 3KV/min at 100mA

• TEST time: 1 second

• TEST POINT
- GND TEST = POWER CORD GND & SIGNAL CABLE METAL GND
- Internal Pressure TEST = POWER CORD GND & LIVE & NEUTRAL

• LEAKAGE CURRENT: At 0.5mArms

7. EYE-Q Check

Step 1) Turn on the TV.

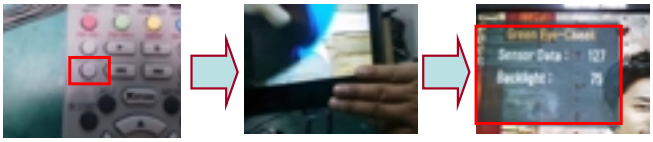
Step 2) Press EYE button in adjust remote control.

Step 3) Stay 6 seconds with Eye Q sensor hidden located on the front of the set.

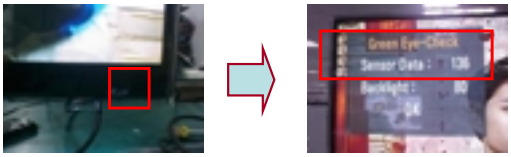
Step 4) Check the “Sensor Data” on the screen and check whether the value is lower thanafter 6 seconds, the value does not go below 10, Eye Q sensor is not working properly. Then, change the sensor.

Step 5) Remove hand from the Eye Q II sensor and stay for 6 seconds.

Step 6) Check whether the “Back Light (xxx)” value has risen on the screen. If after 6 seconds and the value still does not go high, the eye Q II sensor is not working properly. Replace the sensor.



<Step1> <Step2> <Step3>



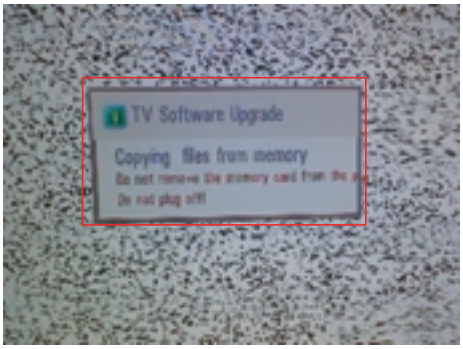
<Step4> <Step5>

8. USB S/W Download (Option, Service only)

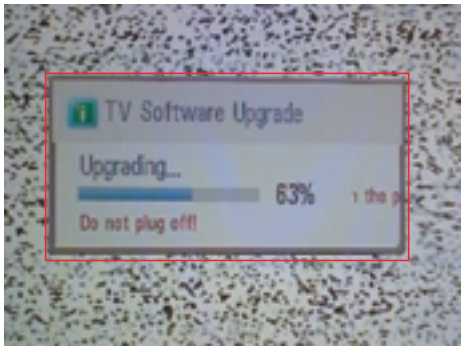
1. Put the USB Stick to the USB socket
2. Automatically detecting update file in USB Stick

- If your downloaded program version in USB Stick is Low, it didn't work. But your downloaded version is High, USB data is automatically detecting

3. Show the message "Copying files from memory"



4. Updating is starting.



5. Updating Completed, The TV will restart automatically
6. If your TV is turned on, check your updated version and Tool option. (Explain the Tool option, next stage)

* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. if all channel data is cleared, you didn't have a DTV/ATV test on production line.

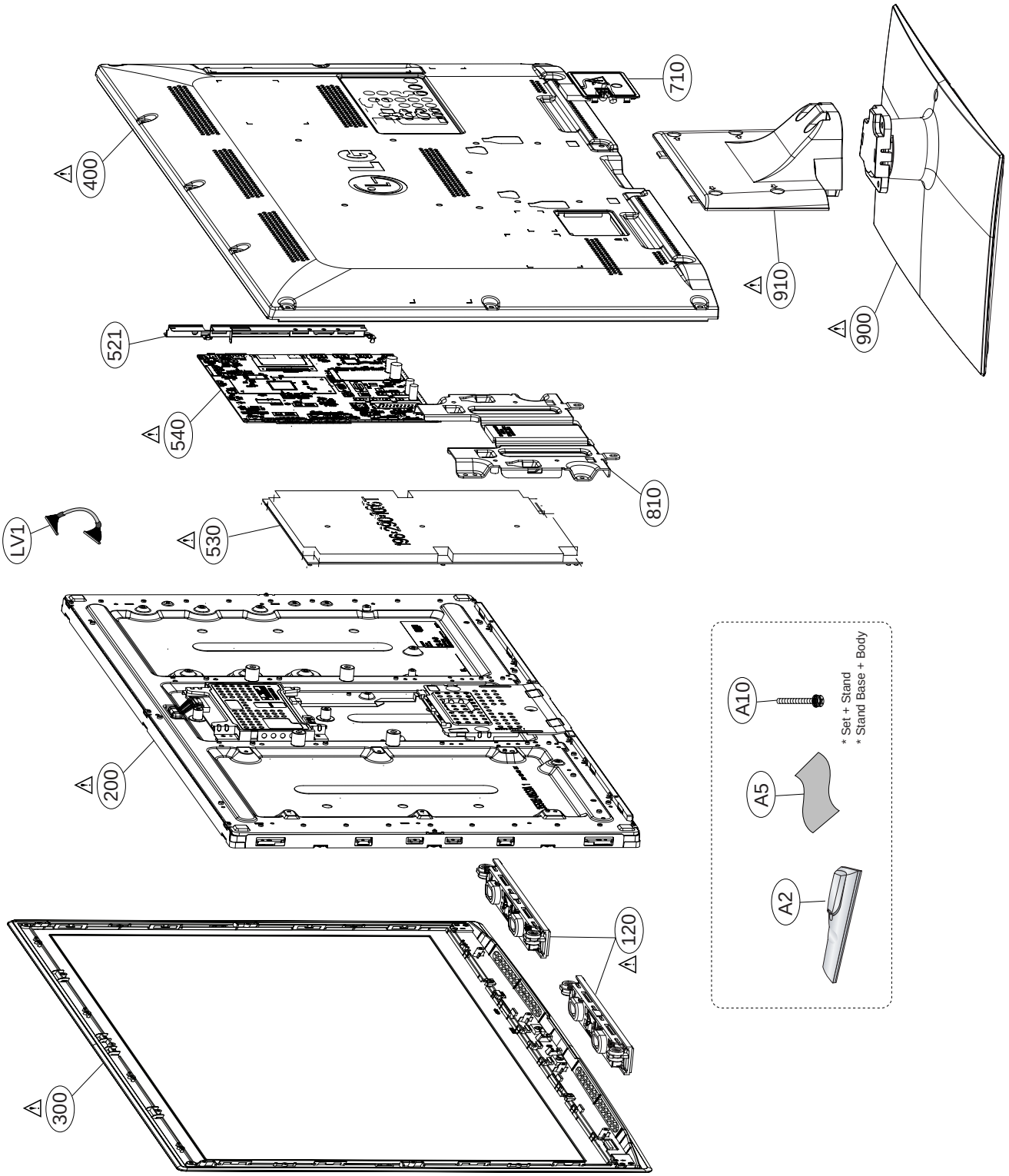
*** After downloading, have to adjust TOOL OPTION again.**

1. Push "IN-START" key in service remote controller.
2. Select "Tool Option 1" and Push "OK" button.
3. Punch in the number. (Each model has their number.)

EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.



S7M-PLUS_DivX_MS10

LGE107DC-RP [S7M+ DIVX/MS10]

NAND FLASH MEMORY

IC102
NAND1GW3B2CN6E

NAND_FLASH_1G_NUMONYX
EAN60762401

+3.3V_Normal

/PF_CE0
H : Serial Flash
L : NAND Flash
/PF_CE1
H : 16 bit
L : 8 bit

/F_RB
/PF_OE
/PF_CE0
/PF_WP
/PF_CE1
PF_ALE
/PF_WE

R107 1K
R109 3.9K
R108 1K OPT
C101 0.1uF
R105 1K OPT
R104 10K OPT
R106
R102 3.9K
Q101 KRC103S OPT

AR101 22
AR102 22
C102 10uF
C103 0.1uF

PCM_A[0-7]
PCM_A[7]
PCM_A[6]
PCM_A[5]
PCM_A[4]
PCM_A[3]
PCM_A[2]
PCM_A[1]
PCM_A[0]

<T3 CHIP Config(AUD_LRCH)>

Boot from SPI flash : 1'b0
Boot from NOR flash : 1'b1

<T3 CHIP Config>
(AUD_SCK, AUD_MASTER_CLK, PWM1, PWM0)

MIPS_no_EJ_NOR8 : 4'h3 (MIPS as host. No EJ PAD. Byte mode NAND flash.)
MIPS_EJ1_NOR8 : 4'h4 (MIPS as host. EJ use PAD1. Byte mode NAND flash)
MIPS_EJ2_NOR8 : 4'h5 (MIPS as host. EJ use PAD2. Byte mode NAND flash.)
B51_Secure_no scramble : 4'hb (8051 as host. Internal SPI flash secure boot, no scramble)
B51_Sesure_scramble : 4'hc (8051 as host. Internal SPI flash secure boot with scarmble)

+3.3V_Normal
AUD_MASTER_CLK
R148 56
C112 100pF 50V
R115 1K
R117 1K
R123 1K OPT
R125 1K OPT
R116 1K
R118 1K OPT
R121 1K
R124 1K
R126 1K
AUD_LRCH
AUD_SCK
AUD_MASTER_CLK_0
PWM1
PWM0

IC101

PCM_D[0-7]
PCM_A[0-14]
PCM_REG
PCM_OE
PCM_WE
PCM_IORD
PCM_IOWR
PCM_CE
PCM_IRQA
PCM_CD
PCM_WAIT
PCM_RST
/PF_CE0
/PF_CE1
/PF_OE
/PF_WE
PF_ALE
/PF_WP
/F_RB
S7_NEC_TXD
S7_NEC_RXD
I2C_SDA
I2C_SCL
RGB_DDC_SDA
RGB_DDC_SCL
PWM0
PWM1
PWM2
SC_RE2
SC_RE1
DSUB_DET
MODEL_OPT_3
PCM_5V_CTL
/RST-PHY

+5V_Normal
R132 10K
R133 10K
C108 0.1uF OPT
C109 0.1uF
AR104 22
AR103 22
R134 22
R135 22
R136 22
R137 22
R138 22
R139 22

for SYSTEM/HDCP EEPROM&URSA3
TO SCART1

PCM_D0 U22
PCM_D1 T21
PCM_D2 T22
PCM_D3 AB18
PCM_D4 AC18
PCM_D5 AC19
PCM_D6 AC20
PCM_D7 AC21
PCM_A0 U21
PCM_A1 V21
PCM_A2 Y22
PCM_A3 AA22
PCM_A4 R22
PCM_A5 R21
PCM_A6 T23
PCM_A7 T24
PCM_A8 AA23
PCM_A9 Y20
PCM_A10 AB17
PCM_A11 AA21
PCM_A12 U23
PCM_A13 Y23
PCM_A14 W23
W22
PCM_REG_N
AA17
PCM_OE_N V22
PCM_WE_N W21
PCM_IORD_N Y21
PCM_IOWR_N
AA20
PCM_CE_N V23
PCM_IRQA_N P23
PCM_CD_N R23
PCM_WAIT_N P22
PCM_RESET
AC17
PCM_PF_CE0Z AB20
PCM_PF_CE1Z AA18
PCM_PF_OEZ AB21
PCM_PF_WEZ AB19
PCM_PF_ALE AD17
PCM_PF_AD[15] AA19
PCM_PF_RBZ
M23
UART_TX2/GPIO65 N23
UART_RX2/GPIO64
DDCR_DA/GPIO71 M22
DDCR_CK/GPIO72 N22
DDCA_DA/UART0_TX A5
DDCA_CK/UART0_RX B5
K23
PWM0/GPIO66 K22
PWM1/GPIO67 G23
PWM2/GPIO68 G22
PWM3/GPIO69 G21
PWM4/GPIO70
C6
SAR0/GPIO31 B6
SAR1/GPIO32 C8
SAR2/GPIO33 C7
SAR3/GPIO34 A6
SAR4/GPIO35

GPIO143/TCON0 N21
GPIO145/TCON2 M21
GPIO147/TCON4 L22
GPIO149/TCON6 L21
GPIO151/TCON8 P21
5V_DET_HDMI_1
5V_DET_HDMI_2
5V_DET_HDMI_4
SIDEAV_DET

Delete Wireless

GPIO36/UART3_RX K21
GPIO37/UART3_TX L23
GPIO38 K20
GPIO39 L20
GPIO40 M20
GPIO41 G20
GPIO42 G19
ET_RXER
FRC_RESET
SC1/COMP1_DET
ERROR_OUT
MODEL_OPT_0

GPIO50/UART1_RX F20
GPIO51/UART1_TX F19

GPIO6/PM0/INT0 E7
GPIO7/PM1/PM_UART_TX D7
GPIO8/PM2 E11
GPIO9/PM3 G9
GPIO10/PM4 F9
GPIO11/PM5/PM_UART_RX/INT1 C5
USB1_OCD
USB1_CTL
HP_DET
CONTROL_ATTEN
MODEL_OPT_6
MODEL_OPT_1

PM_SPI_CS1/GPIO12/PM6 E8 33 R146
PM_SPI_WP1/GPIO13/PM7 E9
PM_SPI_WP2/GPIO14/PM8/INT2 F7
GPIO15/PM9 F6
PM_SPI_CS2/GPIO16/PM10 D8
GPIO17/PM11/INT3 G12
GPIO18/PM12/INT4 F10
/FLASH_WP
MODEL_OPT_2
TUNER_RESET
DEMOD_RESET
AV_CVBS_DET

PM_SPI_CK/GPIO1 D9 33 R147
PM_SPI_CZ/GPIO0 D11
PM_SPI_DI/GPIO2 E10
PM_SPI_DO/GPIO3 D10 33 R151
SPI_SCK
/SPI_CS
SPI_SDI
SPI_SDO
for SERIAL FLASH

TS0_CLK AA9
TS0_VLD AA5
TS0_SYNC AA10
CI_TS_CLK
CI_TS_VAL
CI_TS_SYNC
CI_TS_DATA[0-7]
from CI SLOT

TS0_D0 AB5 CI_TS_DATA[0]
TS0_D1 AC4 CI_TS_DATA[1]
TS0_D2 Y6 CI_TS_DATA[2]
TS0_D3 AA6 CI_TS_DATA[3]
TS0_D4 W6 CI_TS_DATA[4]
TS0_D5 AA7 CI_TS_DATA[5]
TS0_D6 Y9 CI_TS_DATA[6]
TS0_D7 AA8 CI_TS_DATA[7]

TS1_CLK AC5
TS1_VLD AC6
TS1_SYNC AB6
FE_TS_CLK
FE_TS_VAL_ERR
FE_TS_SYNC
FE_TS_DATA[7-0]
Internal demod out /External demod in

TS1_D0 AC10 FE_TS_DATA[0]
TS1_D1 AB10 FE_TS_DATA[1]
TS1_D2 AC9 FE_TS_DATA[2]
TS1_D3 AB9 FE_TS_DATA[3]
TS1_D4 AC8 FE_TS_DATA[4]
TS1_D5 AB8 FE_TS_DATA[5]
TS1_D6 AC7 FE_TS_DATA[6]
TS1_D7 AB7 FE_TS_DATA[7]

MPIF_CLK D12
MPIF_CS_N D14
MPIF_BUSY E14
MPIF_D0 E12
MPIF_D1 F12
MPIF_D2 D13
MPIF_D3 E13
R160 1K
Delete /PIF_SPI_CS

NAND_FLASH_1G_HYNIX
EAN35669102
IC102-*1
H27U1G8F2BTR-BC

NAND_FLASH_1G_SS
EAN61857001
IC102-*2
K9F1G08U0D-SCB0

NAND_FLASH_1G_TOSHIBA
EAN61508001
IC102-*3
TC58NVG0S3ETA0BBBH

S7R

S7R_BASIC | S7R_MS10 | S7R_DivX | S7R_DivX_MS10 | S7R_RM

S7MR

S7MR_BASIC | S7MR_MS10 | S7MR_DivX | S7MR_DivX_MS10 | S7MR_RM

S7MR-PLUS

S7M-PLUS_BASIC | S7M-PLUS_MS10 | S7M-PLUS_DivX | S7M-PLUS_RM

FRC_SCL
FRC_SDA

EEPROM_1MBIT_ATMEL
IC104-*1
AT24C1024BN-SH-T

NC A1 A2 GND VCC WP SCL SDA

HDCP EEPROM

IC103
CAT24WC08W-T
Addr:10101--
+3.3V_Normal
R113 4.7K
A0 A1 A2 VSS VCC WP SCL SDA
C107 0.1uF
R127 4.7K
R128 22
R129 22
I2C_SCL
I2C_SDA

EEPROM

EEPROM_1MBIT_ST
IC104
M24M01-HRMN6TP
A0'h
+3.3V_Normal
C105 0.1uF
E1 E2 VSS VCC WP SCL SDA
R111 22
R112 22
C104 8pF OPT
C106 8pF OPT

I2C

+3.3V_Normal
R140 R141 R142 3.3K R143 3.3K R144 R145 R146
AMP_SDA
AMP_SCL
I2C_SDA
I2C_SCL
NEC_SDA
NEC_SCL

DIMMING

A_DIM R156 10K PWM0
PWM_DIM R157 100 PWM2
R155 0
C111 2.2uF OPT
LD650 Scan
SCAN_BLK2 R158 100 OPT FRC_PWM1
SCAN_BLK1/OPC_OUT R159 100 OPT FRC_PWM0

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP3_Saturn7M	DATE	Ver. 0.1
BLOCK	FLASH/EEPROM/GPIO	SHEET	1 /

MODEL OPTION

PIN NAME	PIN NO.	LOW	HIGH
MODEL_OPT_0	G19	NO FRC	FRC
MODEL_OPT_4	E18	50/60Hz LVDS	100/120Hz LVDS
MODEL_OPT_1	C5	PHM_OFF	PHM_ON
MODEL_OPT_2	F7	2D	3D
MODEL_OPT_3	B6	HD	FHD
MODEL_OPT_5	D18	Ready	default
MODEL_OPT_6	F9	LCD	OLED

NO_FRC (OPT_0 : LOW, OPT_4 : LOW)
U3_INTERNAL (OPT_0 : HIGH, OPT_4 : LOW)
U5_EXTERNALBOOT (OPT_0 : HIGH, OPT_4 : HIGH)
reserved for FRC (OPT_0 : LOW, OPT_4 : HIGH)

--> This option is only applied in EU.
In case of NON_EU, default value set LOW.

-->In case of GP2, This port was used for GIP/NON_GIP

RSDS Power OPT

VDDC 1.26V

Normal Power 3.3V

Normal 2.5V

DDR3 1.5V

RSDS Power OPT

S7M-PLUS_DivX_MS10
IC101
LGE107DC-RP [S7M+ DIVX/MS10]

HDMI

DSUB

SCART1_RGB/COMP1

COMP2

CVBS In/OUT

Close to MSTAR

ANALOG SIF
Close to MSTAR

DTV_IF

TU/DEMOD_I2C

B/T USB

SIDE USB

I2S_I/F

AUDIO IN

AUDIO OUT

H/P OUT

Delete CHB_CVBS_IN

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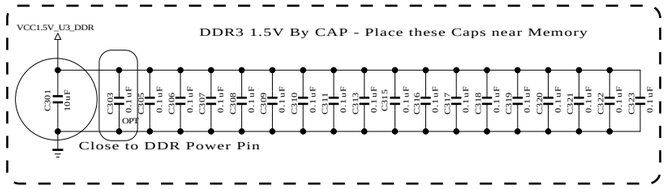
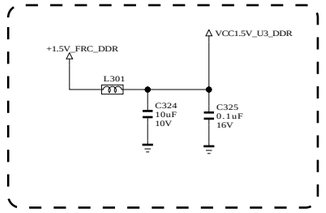
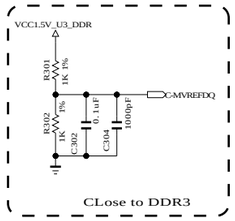
SECRET
LGElectronics

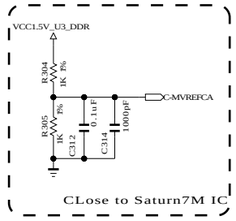
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	MAIN2, HW OPT	SHEET	2



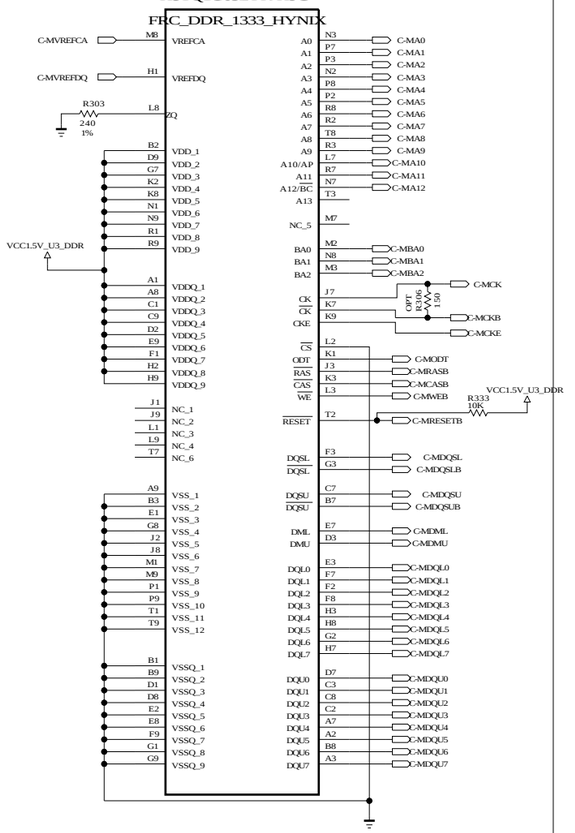


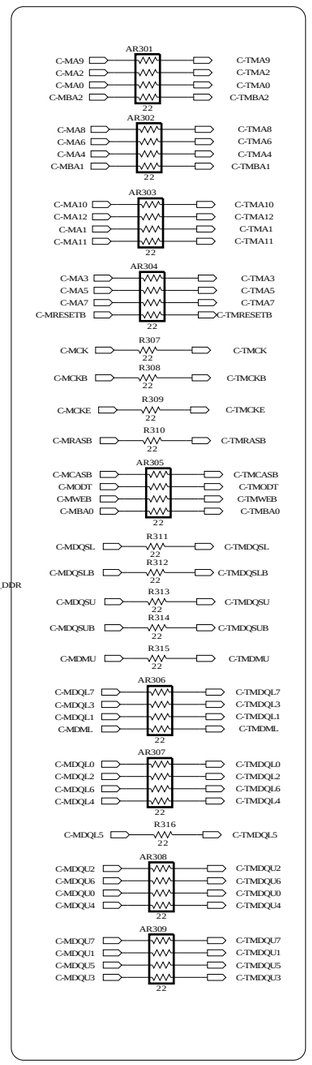




EAN61828901

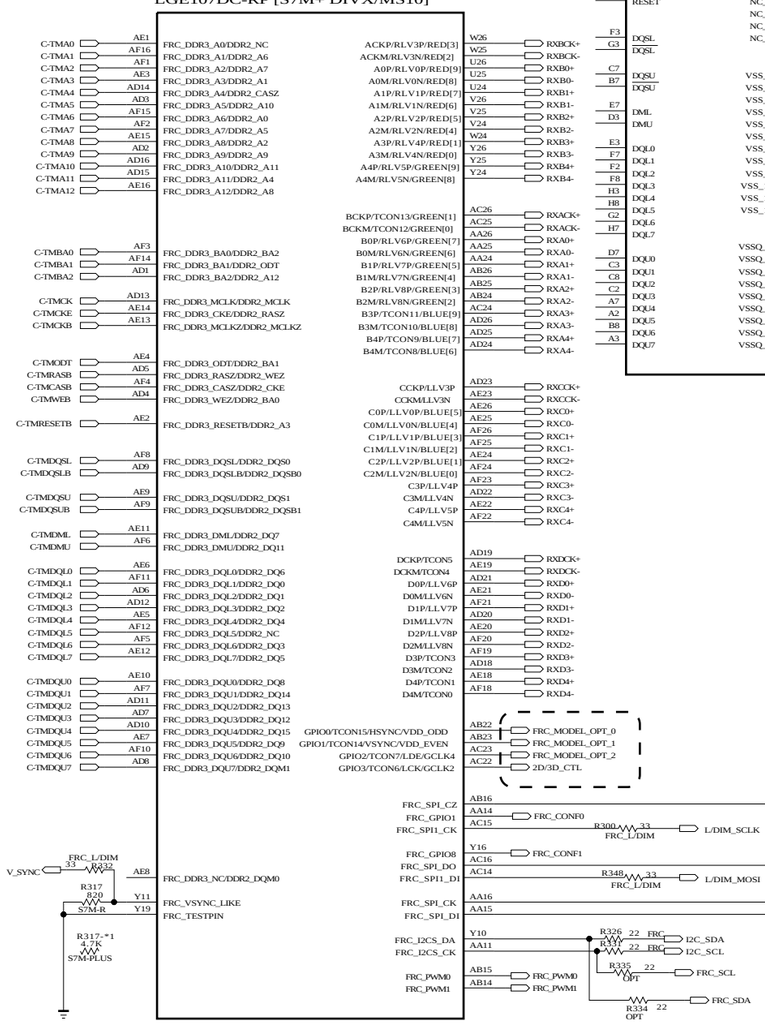
IC301
H5TQ1G63DFR-H9C





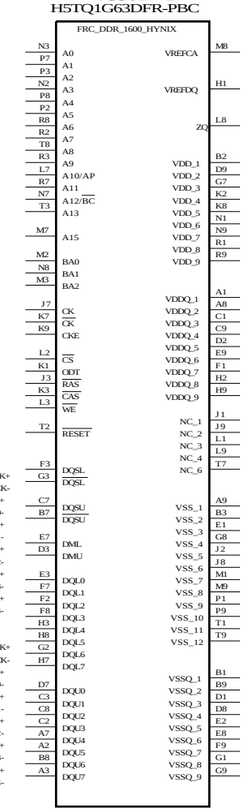
S7M-PLUS_DivX_MS10

IC101
LGE107DC-RP [S7M+ DIVX/MS10]



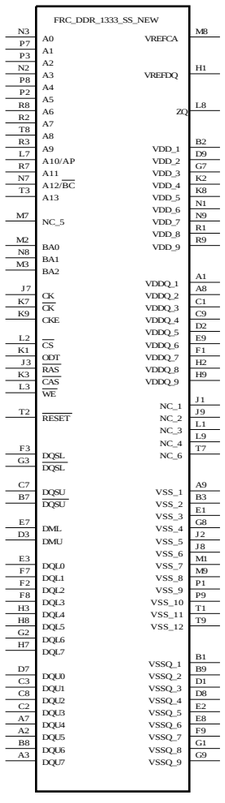
EAN61829001

IC301-*2
H5TQ1G63DFR-PBC



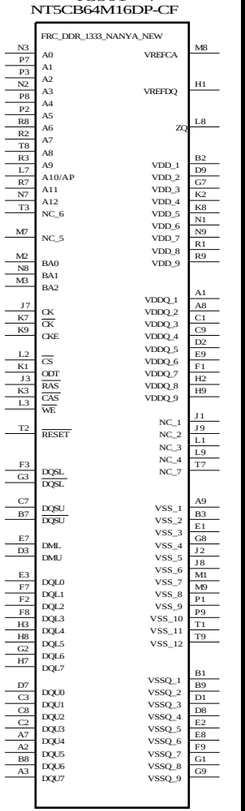
EAN61857101

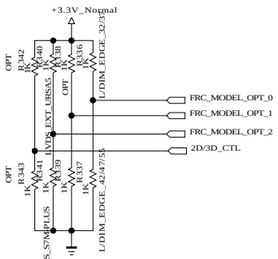
IC301-*3
K4B1G1646G-BCH9

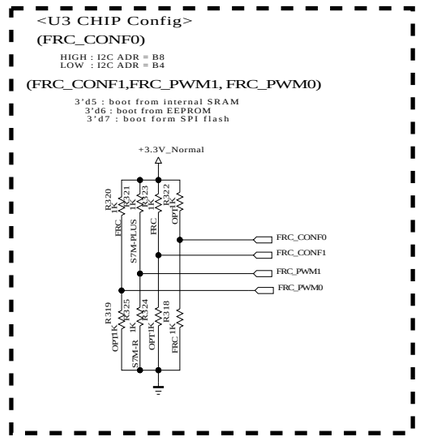


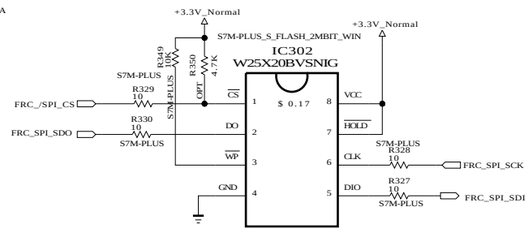
EAN61857201

IC301-*4
NT5CB64M16DP-CF









THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

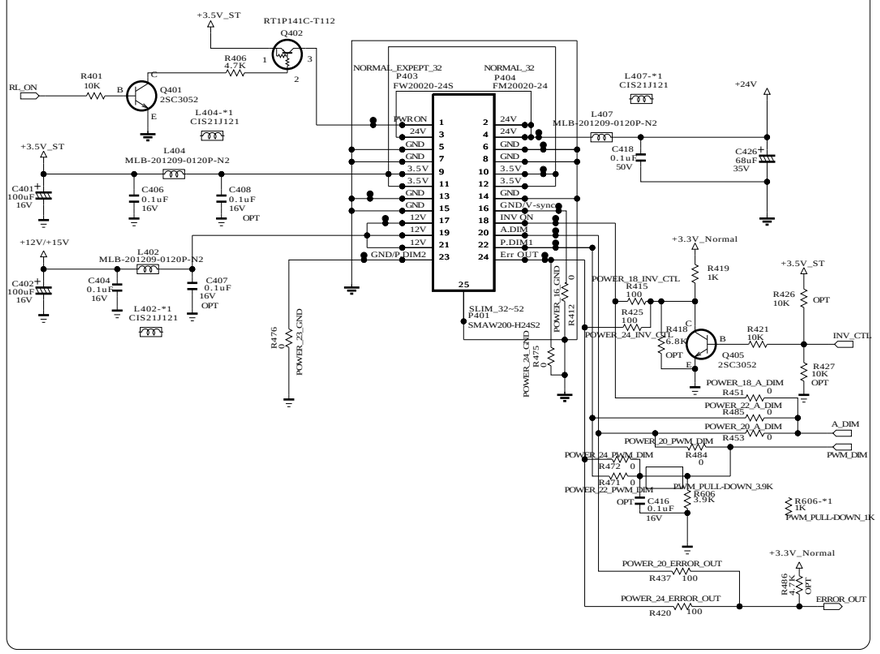
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	FRC_DDR	SHEET	3

FROM LIPS & POWER B/D



<MODULE PIN MAP>

PIN No	LGD(PSU) or LIPS	CMO10"Lamp (PSU)	AUO 10"Lamp (PSU)	SHARP (PSU)	IPS-@ (PSU)
16	GND	GND	GND	GND	GND
18	INV_ON	A-DIM	INV_ON	INV_ON	INV_ON
20	VBR-A	NC	Err_out	52/60:ERROR 26/32HD:NC	Err_out
22	PWM_DIM	PWM_DIM	NC	26/32/52:PWM 60:NC	NC
24	Err_out	INV_ON	PWM_DIM	26/32/52:GND 60:PWM	PWM_DIM
23	GND	GND	GND	GND	GND

<LED MODULE PIN MAP -> latest update 20100618>

PIN No	LGD LPB / OS LPB	32LE5300-TA CMO10"LED (PSU)	32LE4500-TA AUO 10"LED (PSU)	32LE5300-TA LGD 10"LED (PSU)	
16	NC	NC	NC	NC	
18	INV_ON	INV_ON	INV_ON	INV_ON	
20	NC	err_out --> NC	err_out --> NC	NC	
22	PWM_DIM	NC	NC	PWM_DIM	
24	err_out --> NC	PWM_DIM	PWM_DIM	err_out --> NC	
23	NC	NC	NC	NC	

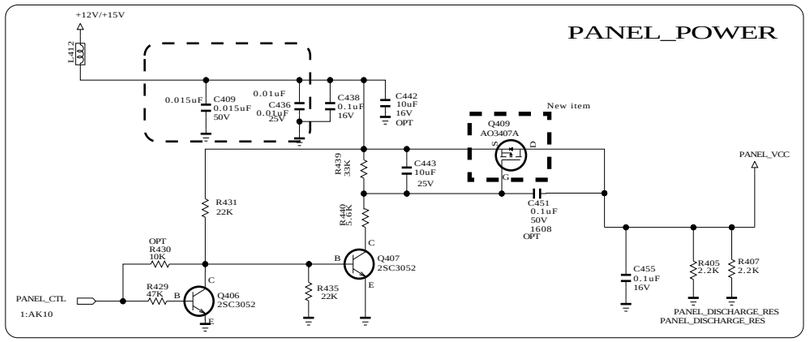
LGD edge led error-out use or not? checking is necessary...

TP5302 OLP
TP5303 V_SYNC
TP5304 SCAN_BLK2
TP5305 SCAN_BLK1/OPC_OUT
TP5306 OPC_OUT

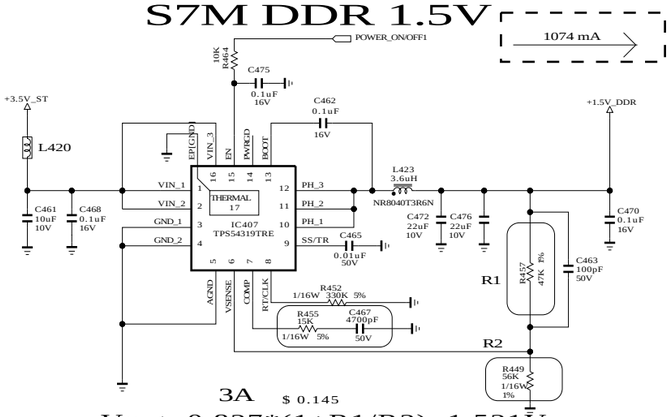
<Module Inv to Main Pin Connection>

INV <--> MAIN
#11 <--> #24
#12 <--> #18
#13 <--> #20
#14 <--> #22

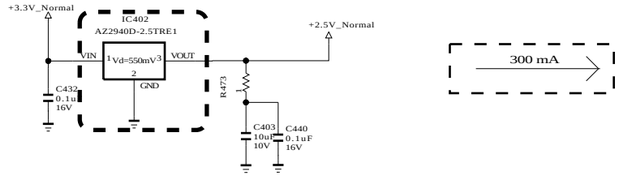
PANEL_POWER



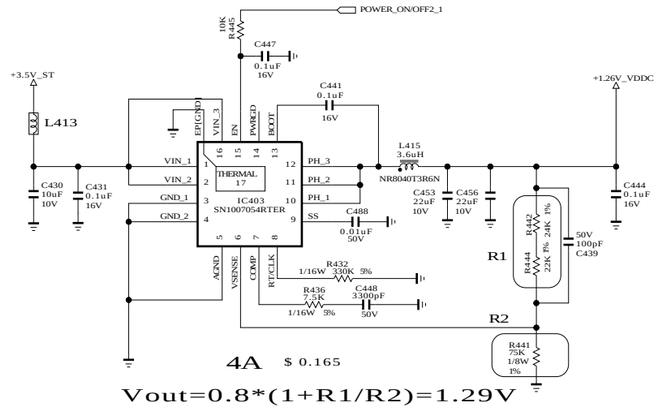
S7M DDR 1.5V



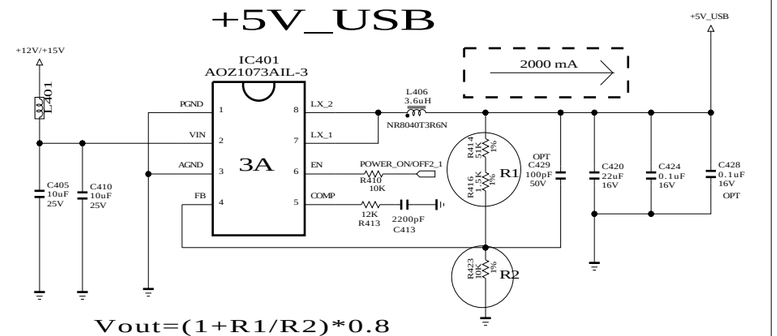
+2.5V/+1.8V



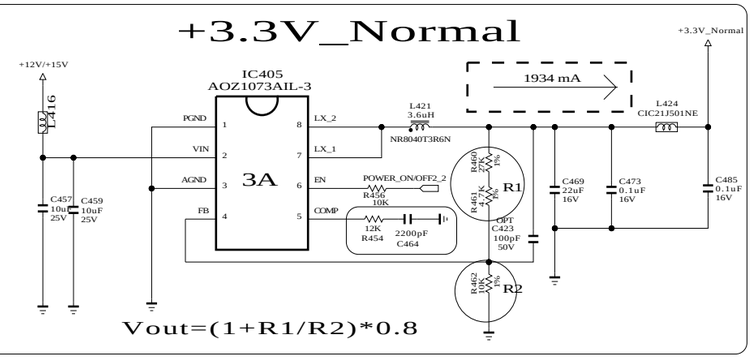
S7M core 1.26V volt



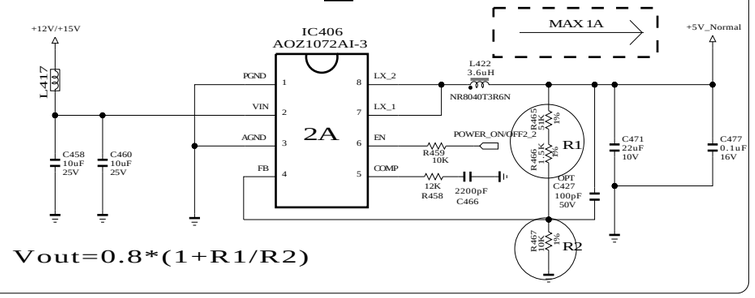
+5V_USB



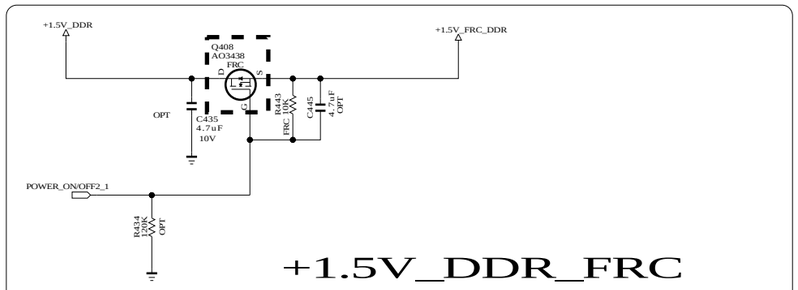
+3.3V_Normal



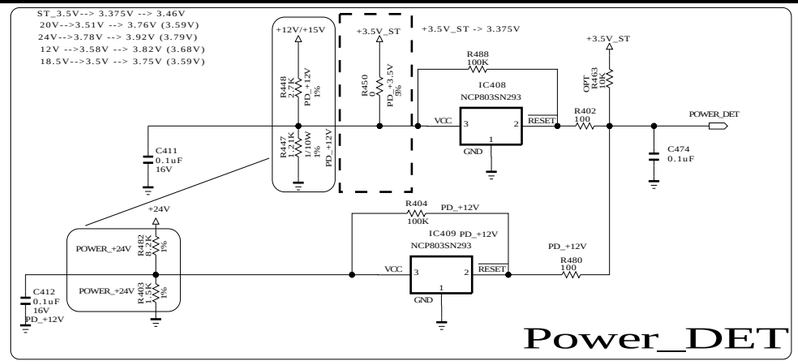
+5V_Normal



+1.5V_DDR_FRC



Power_DET



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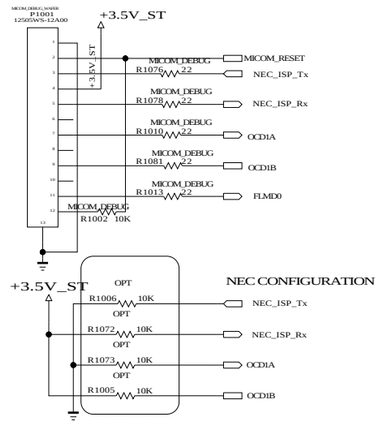
SECRET
LGElectronics

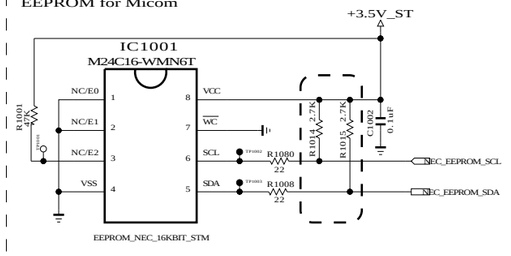
LG ELECTRONICS

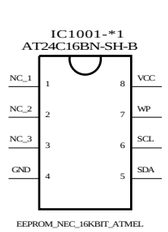
MODEL	GP2R	DATE	20101023
BLOCK	POWER_LARGE	SHEET	4

for Debugger

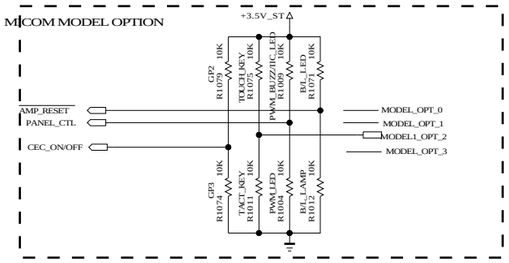


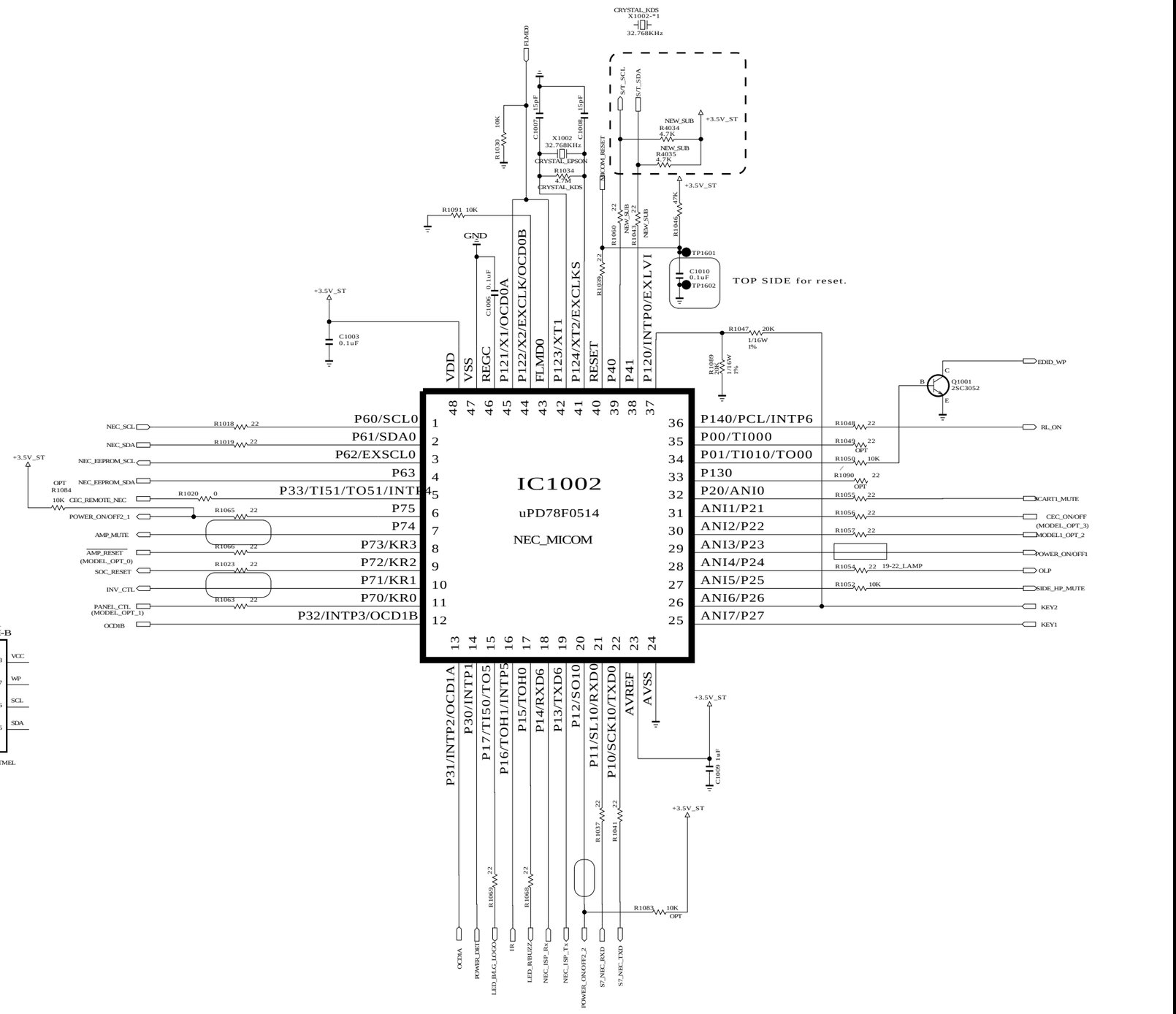
EEPROM for Micom





MICOM MODEL OPTION





2011Y,GP2R, 101125 Update

MODEL OPTION

PIN NAME	PIN NO.	HIGH	LOW
MODEL_OPT_0	8	B/L_LED	B/L_LAMP
MODEL_OPT_1	11	PWM_BUZZ/IIC_LED	PWM_LED
MODEL_OPT_2	30	TOUCH_KEY	TACT_KEY
MODEL_OPT_3	31	GP2	GP3

PWM_BUZZ/IIC_LED :Using IIC for LED Breathing & PWM Buzz
PWM_LED : Using PWM Signal for LED Lighting

MODEL_OPT_0	MODEL_OPT_1	MODEL_OPT_2	MODEL_OPT_3	Description
LOW	LOW	LOW	LOW	LK330/LK430 (for KR/US 10Y EYE-Q Sensor KEY & PWM LED & No Buzz & No LED Blink
LOW	LOW	LOW	HIGH	LK330/LK430/LK530 KEY & PWM LED & No Buzz & No LED Blink
LOW : LED HIGH : LAMP	HIGH	HIGH	LOW	LV25/LV35/LV45/LW45/LV55/LK45/LK55 S/T & HC LED & NO BUZZ & LED Blink
	HIGH	LOW	LOW	TBD IIC LED(09Y IIC Protocol) & No BUZZ
	Low	HIGH	LOW	TBD S/T & IIC LED & No Buzz & LED Blink

2010Y,GP2

MODEL OPTION

PIN NAME	PIN NO.	HIGH	LOW
MODEL_OPT_0	8	B/L_LED	B/L_LAMP
MODEL_OPT_1	11	PWM_BUZZ/IIC_LED	PWM_LED
MODEL_OPT_2	30	TOUCH_KEY	TACT_KEY
MODEL_OPT_3	31	GPIO_LED	NON_GPIO_LED

PWM_BUZZ/IIC_LED : For model that use LED Lighting used IIC
PWM_LED : For model that use LED Lighting used PWM Signal

MODEL_OPT_0	MODEL_OPT_1	MODEL_OPT_2	MODEL_OPT_3	
LOW	LOW	LOW	LOW	LD350/450/550 PWM LED & No Buzz & No LED Blink
HIGH	LOW	HIGH	LOW	19/22/26LE5300/5300 IIC LED & PWM IIC BUZZ
HIGH	HIGH	HIGH	LOW	32/37/42/47/55LE5300 IIC LED & PWM BUZZ
LOW	HIGH	LOW	LOW	LD420 IIC LED(09Y IIC Protocol) & No BUZZ
HIGH	LOW	LOW	HIGH	LE7300 GPIO LED & NO BUZZ

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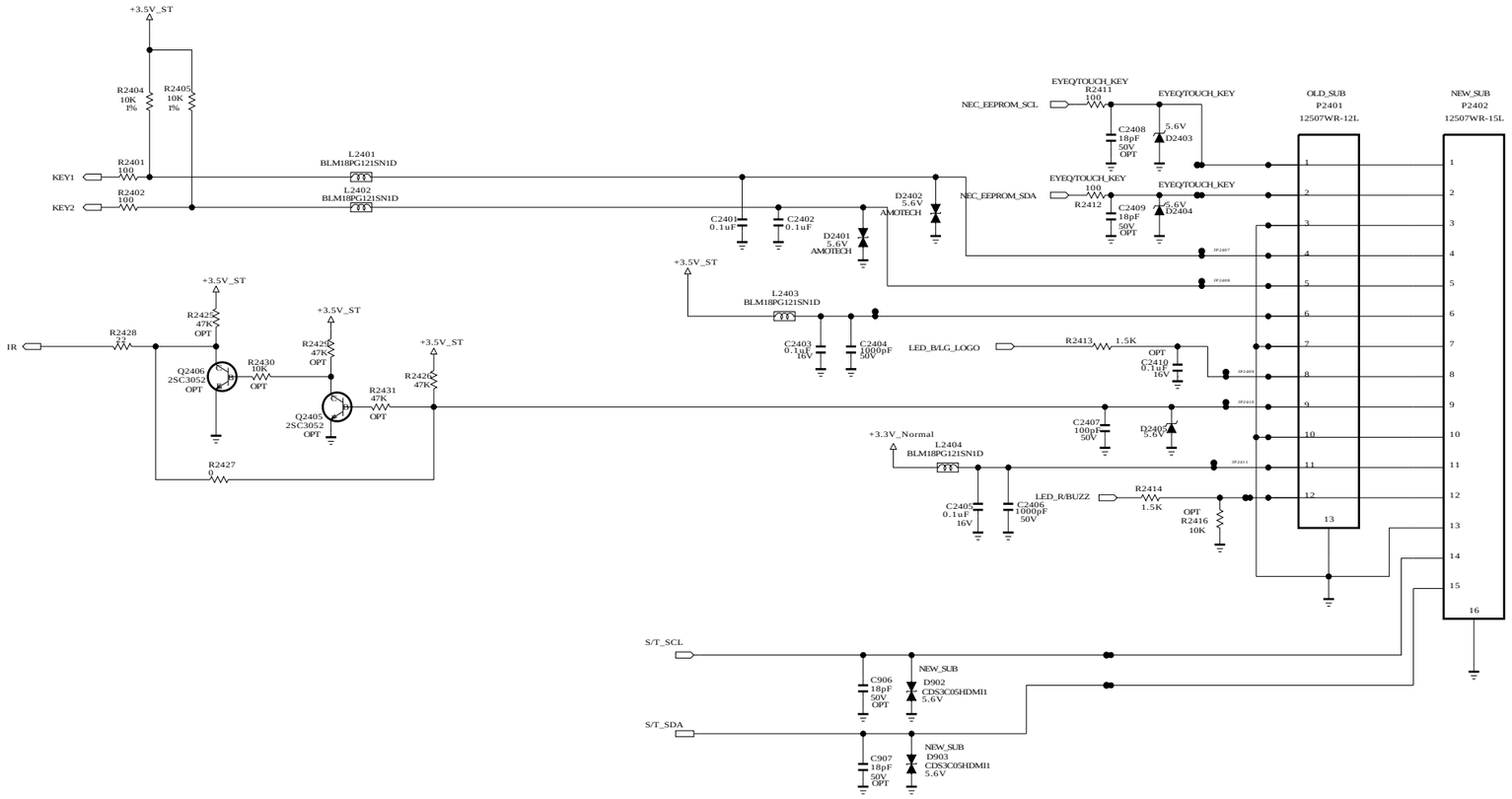
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101125
BLOCK	MICOM Rev.4	SHEET	5

CONTROL

IR & LED



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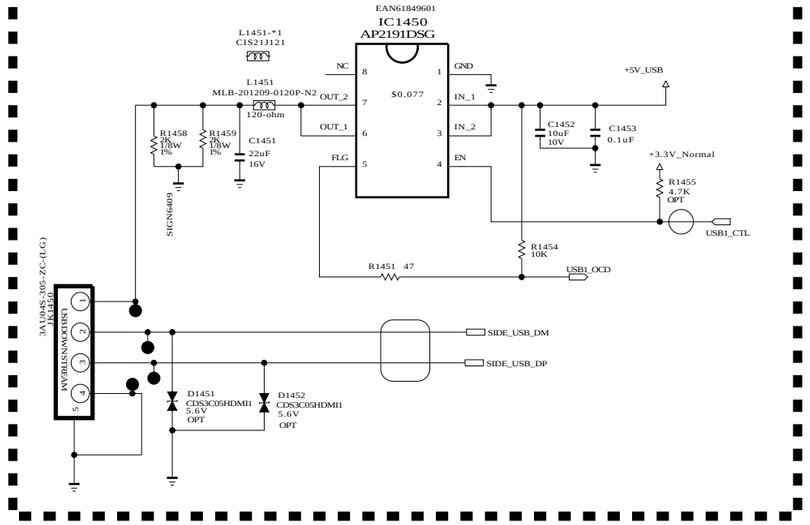
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	IR/CONTROL-L	SHEET	6

USB_DIODES



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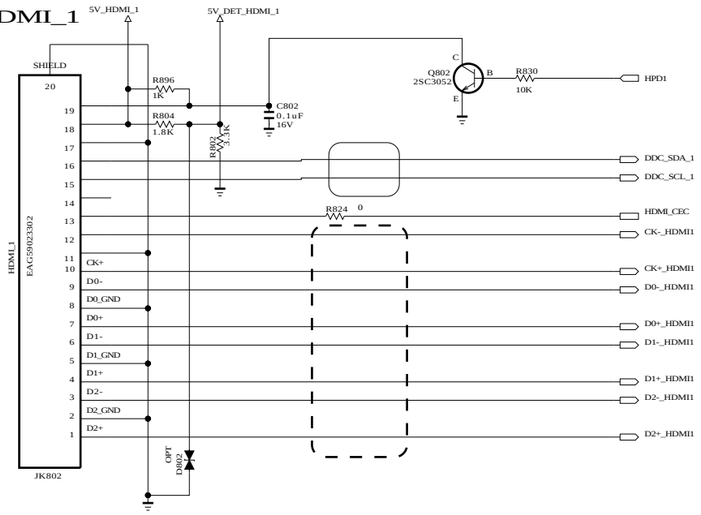
SECRET

LGElectronics

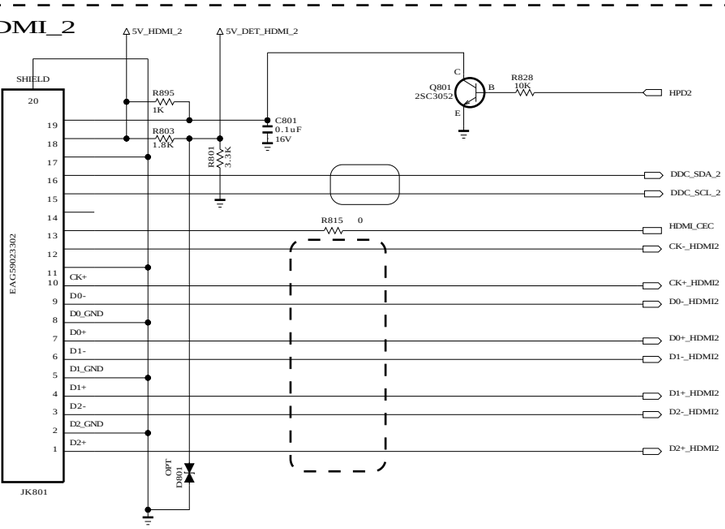
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	USB_OCP_DIODE	SHEET	7 /

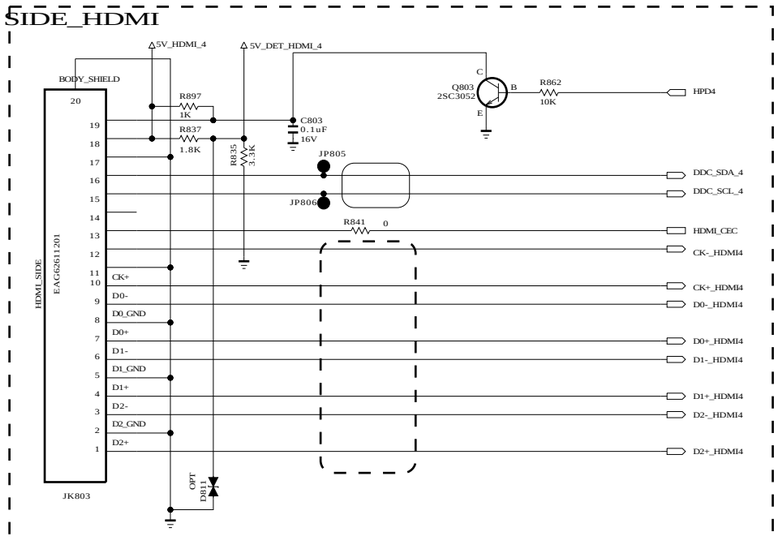
HDMI_1



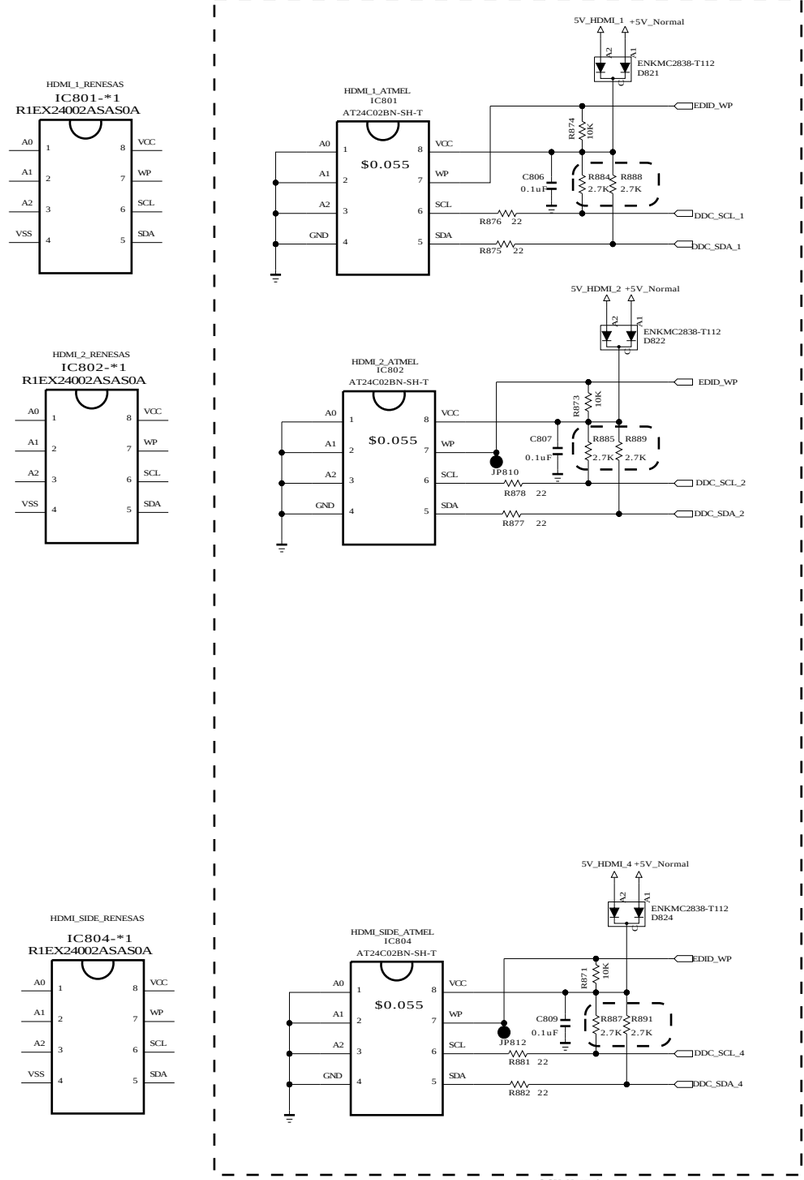
HDMI_2



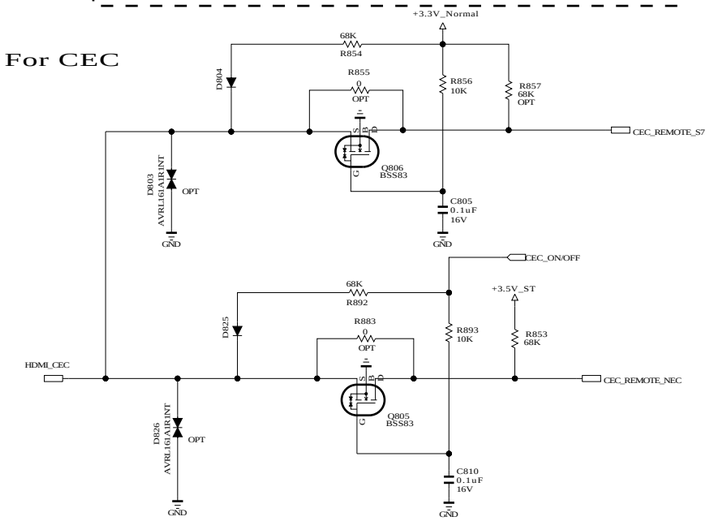
SIDE_HDMI



HDMI EEPROM



For CEC



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SECRET

LGElectronics

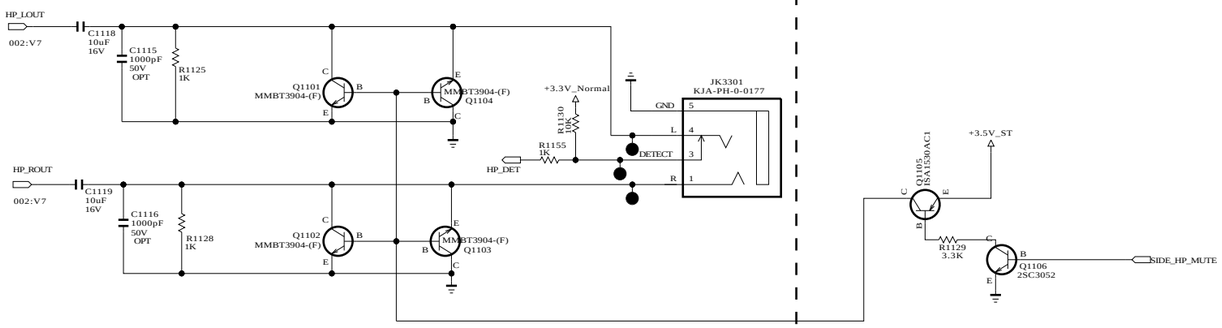
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	HDMI	SHEET	8

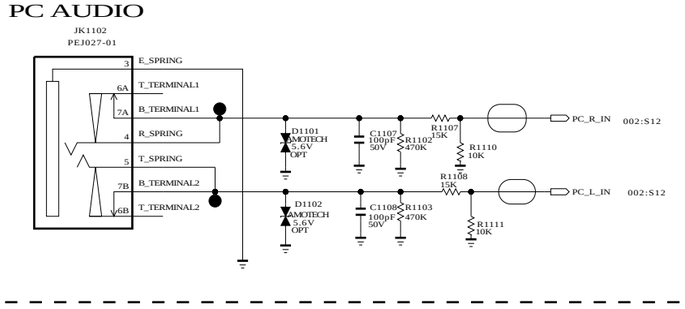
RGB/SPDIF/PC/HP

New Item Development

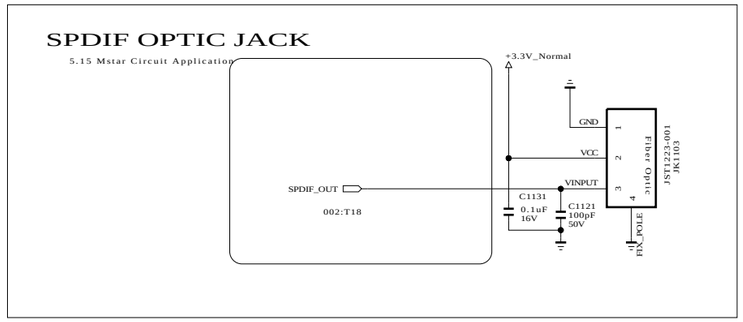
EARPHONE BLOCK



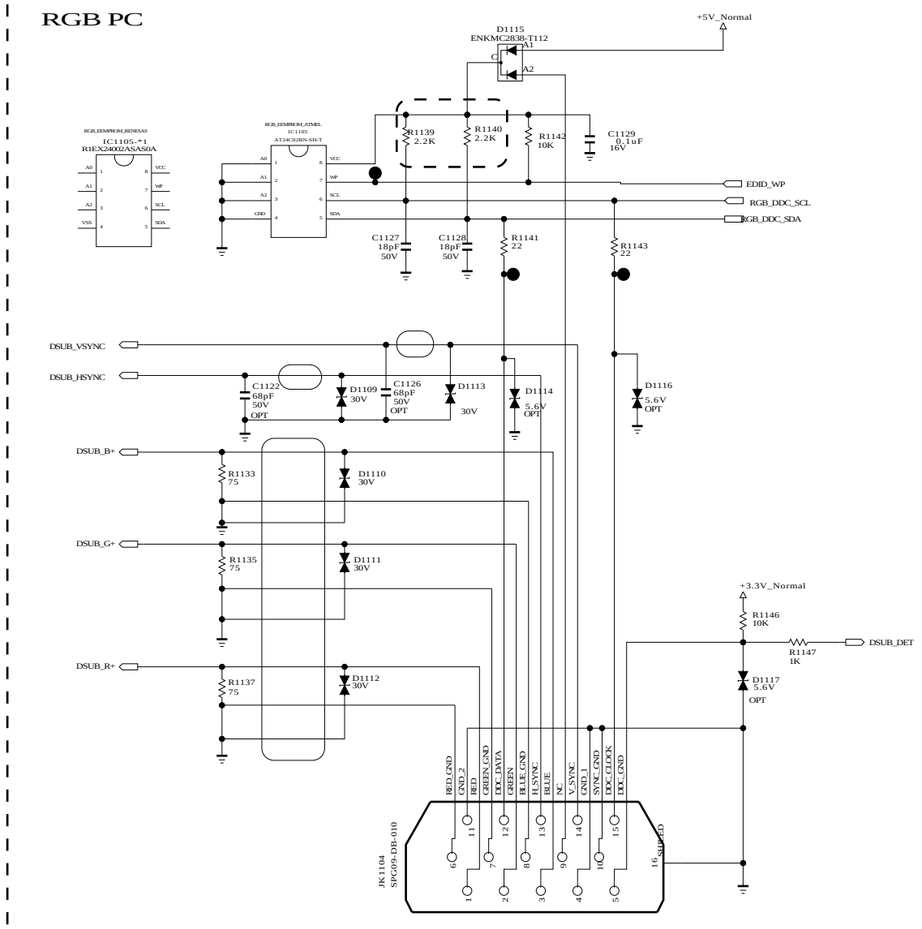
PC AUDIO



SPDIF OPTIC JACK



RGB PC



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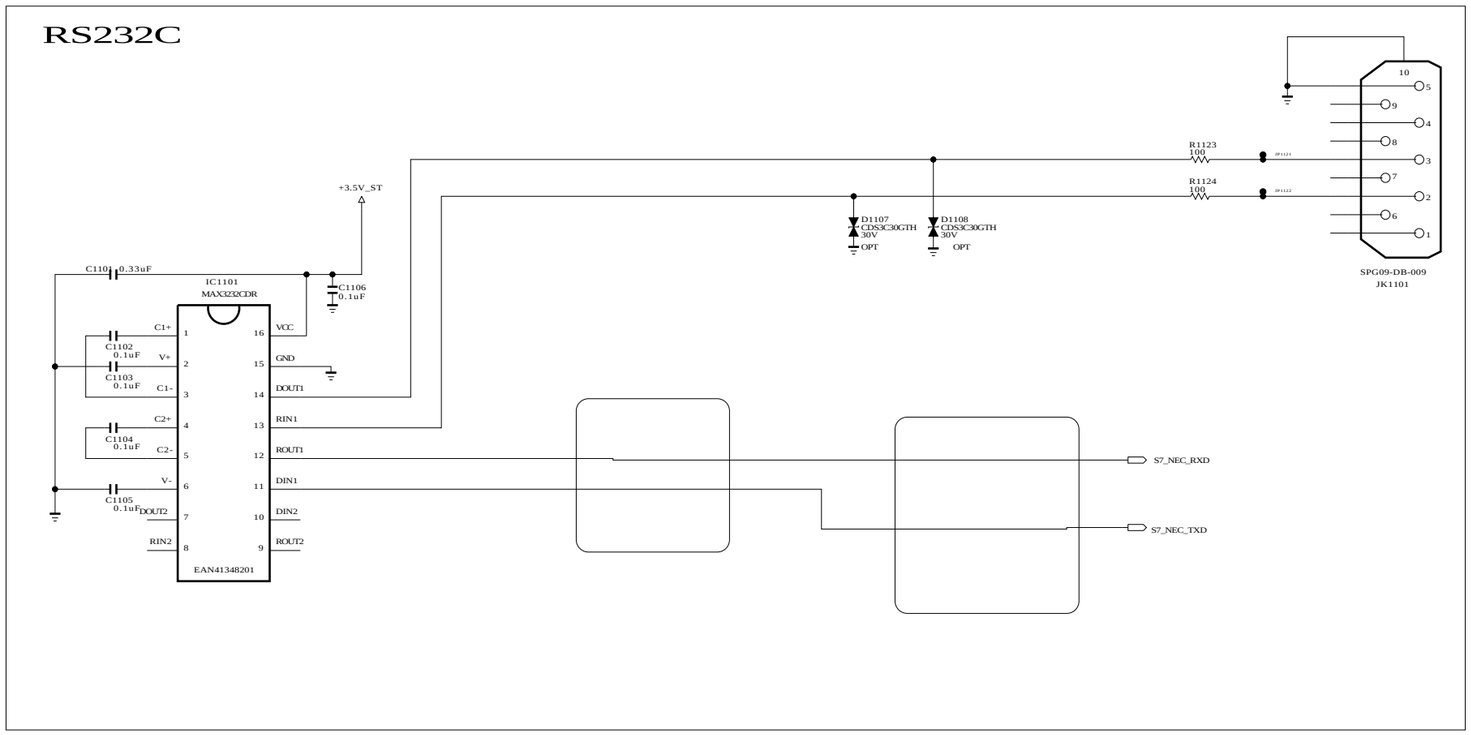
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	RGB/SPDIF/HP	SHEET	9

RS232C



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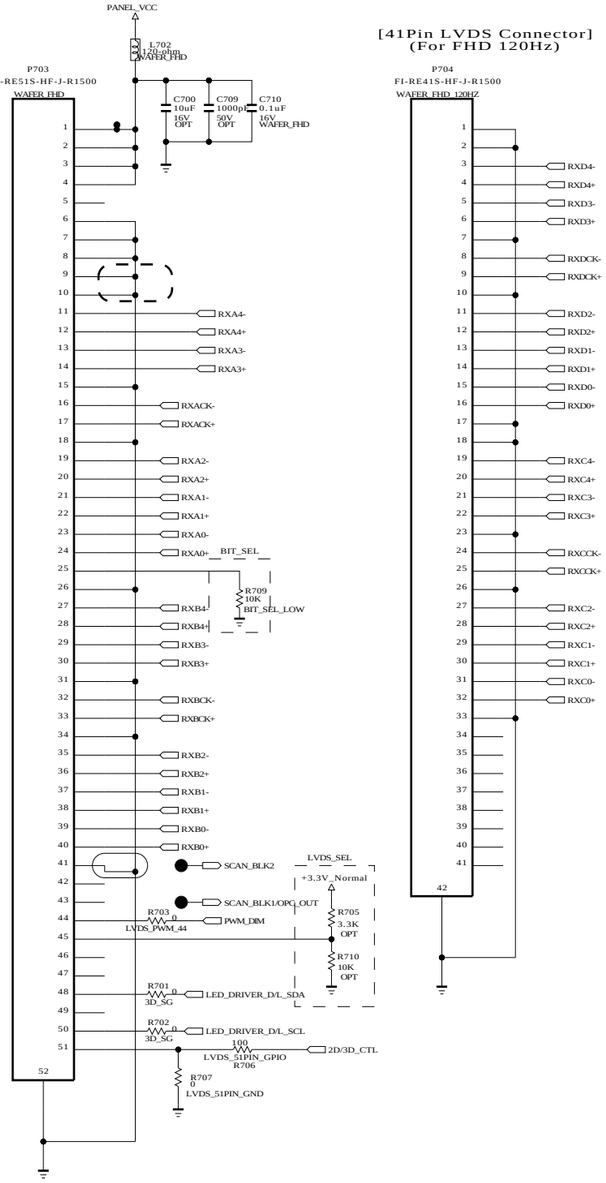
SECRET

LGElectronics

LG ELECTRONICS

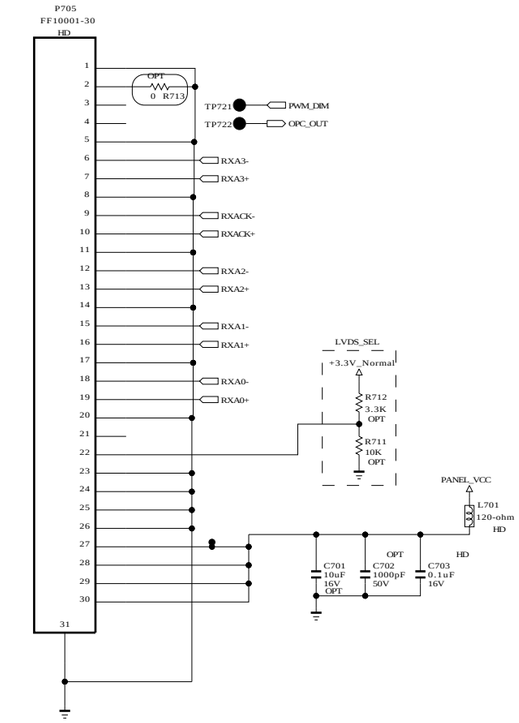
MODEL	GP2R	DATE	20101023
BLOCK	RS232C_9PIN	SHEET	10

[51Pin LVDS Connector] (For FHD 60/120Hz)



[41Pin LVDS Connector] (For FHD 120Hz)

[30Pin LVDS Connector] (For HD 60Hz_Normal)



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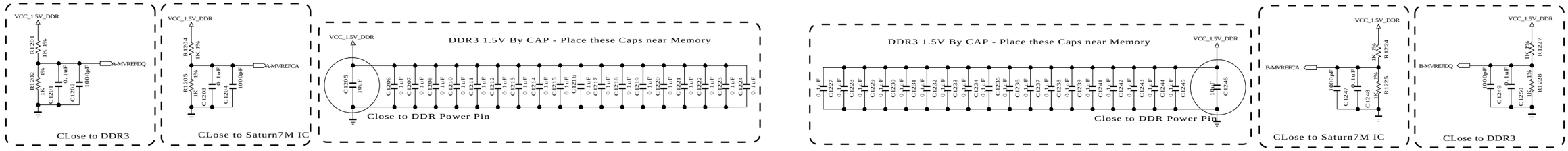
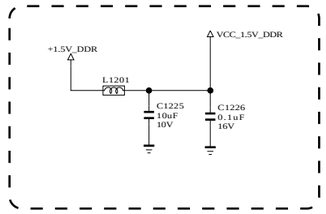
SECRET

LGElectronics

LG ELECTRONICS

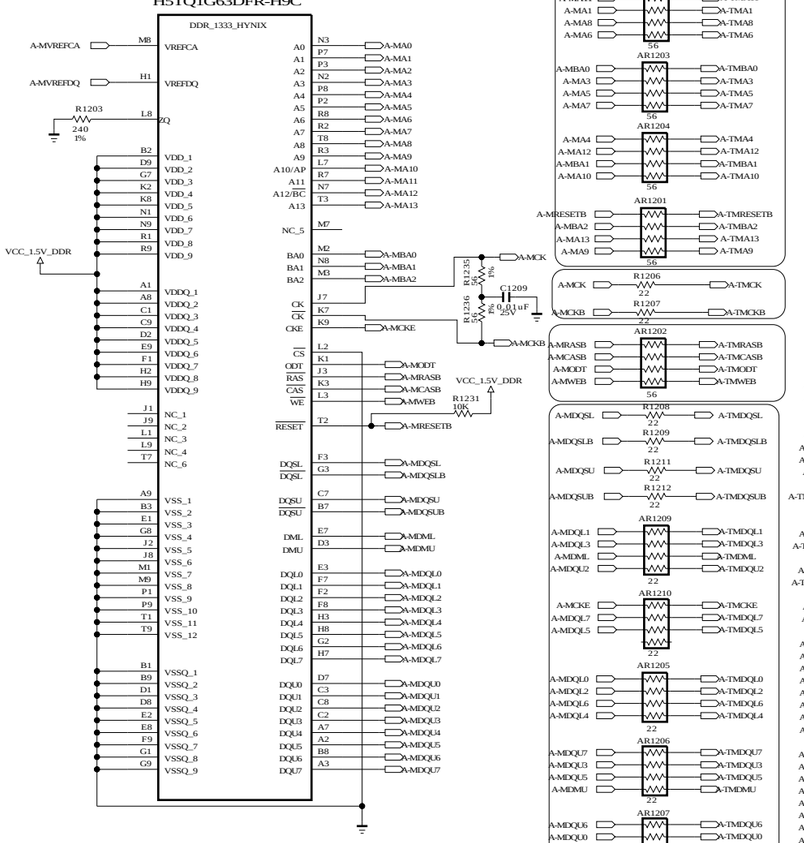
MODEL	GP2R	DATE	20101023
BLOCK	LVDS_LARGE	SHEET	11





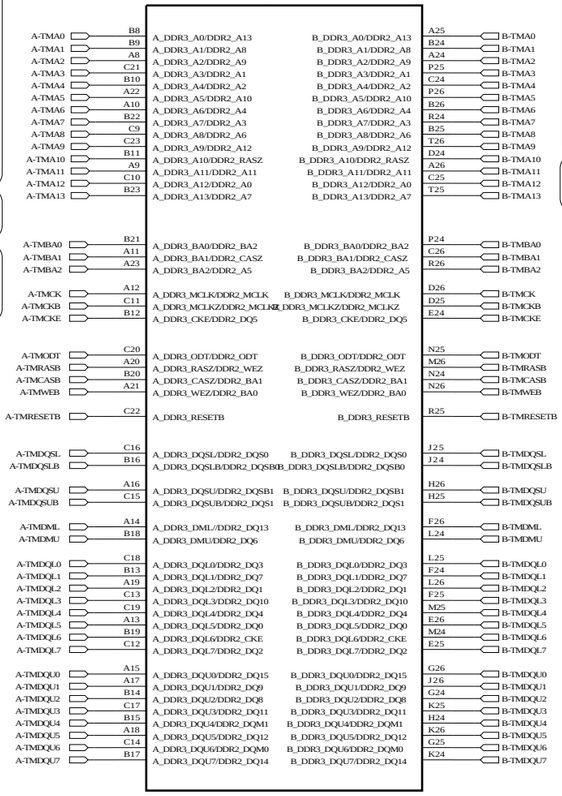
EAN61828901

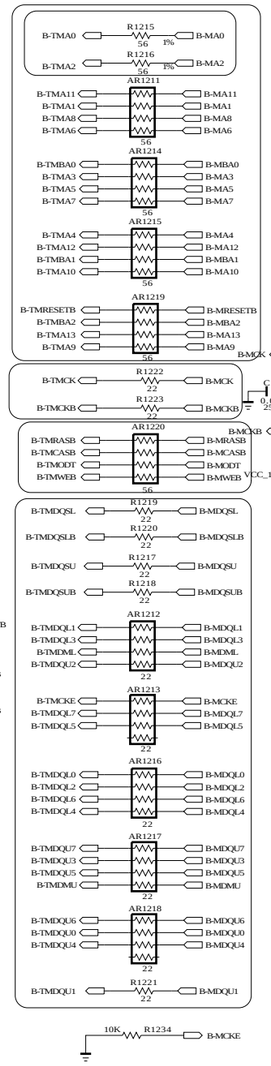
IC1201
H5TQ1G63DFR-H9C



S7M-PLUS_DivX_MS10

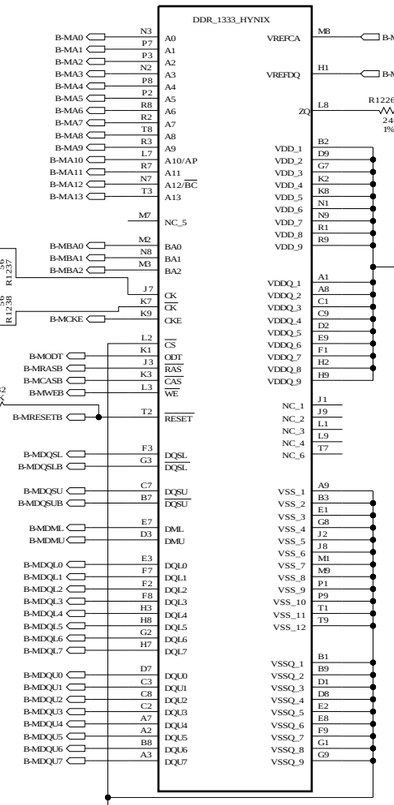
IC101
LGE107DC-RP [S7M+ DIVX/MS10]



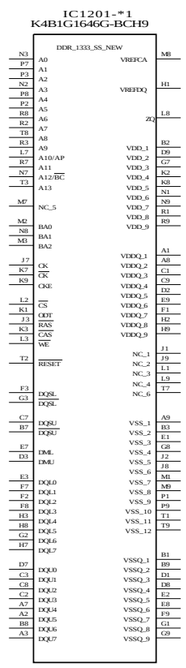


EAN61828901

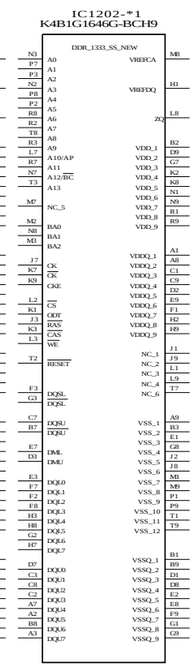
IC1202
H5TQ1G63DFR-H9C



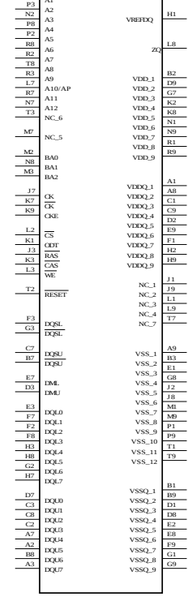
IC1201-*1
K4B1G1646G-BCH9



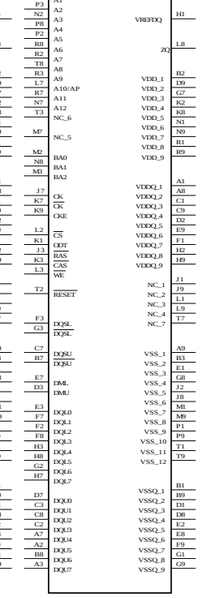
IC1202-*1
K4B1G1646G-BCH9



IC1201-*2
NT5CB64M16DP-CF



IC1202-*2
NT5CB64M16DP-CF



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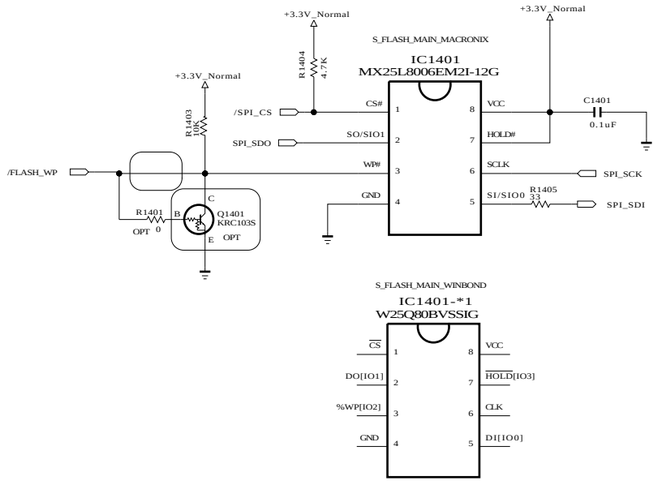
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	DDR_256	SHEET	12 /



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SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	FLASH 1MB	SHEET	13 /

GP2R_LARGE_TUNER

TU3702
TDTJ-S001D

DVB_1INPUT_H_LGIT

1	ANT_PWR[OPT]
2	BST_CNTL
3	+B
4	NC[RF_AGC]
5	AS
6	SCL
7	SDA
8	NC[IF_TP]
9	S1F
10	NC
11	VIDEO
12	GND
13	1.2V
14	3.3V
15	RESET
16	IF_AGC_CNTL
17	DIF_1
18	DIF_2
19	SHIELD

CN_2INPUT_H_LG3911

TU3701
TDFR-C036D

1	RF_S/W_CNTL
2	BST_CNTL
3	+B1[+5V]
4	NC[RF_AGC]
5	NC_1
6	SCLT
7	SDAT
8	NC_2
9	S1F
10	NC_3
11	VIDEO
12	GND
13	+B2[1.2V]
14	+B3[3.3V]
15	RESET
16	NC_4
17	SCL
18	SDA
19	ERR
20	SYNC
21	VALID
22	MCL
23	D0
24	D1
25	D2
26	D3
27	D4
28	D5
29	D6
30	D7
31	SHIELD

close to TUNER

R3702 0 RF_SW_OPT

C3701 0.1uF 16V

RF_SWITCH_CTL

Pull-up can't be applied because of MODEL_OPT_2

close to TUNER

OPT R3762 0 CONTROL_ATTEN

+5V_TU

C3703 100pF 50V

C3704 0.1uF 16V

OPTION : RF AGC

C3728 0.1uF 16V OPT

C3731 10uF 10V OPT

Q3704 2SC3052 OPT

R3754 10K OPT

FE_AGC_SPEED_CTL
IF_AGC_SEL

R3707 0 OPT

C3706 0.1uF 16V

C3702 0.1uF 16V close to TUNER

+1.2V/+1.8V_TU

+3.3V_TU

CN C3739 10uF 6.3V

C3707 100pF 50V

C3708 0.1uF 16V

close to the tuner pin, add,09029

C3737 100pF 50V

C3738 0.1uF 16V

FULL_NIM C3705 100uF 16V

R3732 100

R3733 100K

TUNER_RESET

C3710 0.1uF 16V

C3711-*1 20pF 50V TU_I2C_FILTER

C3713-*1 20pF 50V TU_I2C_FILTER

TU_I2C_FILTER R3735-*1 0 COIL

TU_I2C_FILTER R3736-*1 0 COIL

GPIO must be added.

TU_IIC_NON_ATSC_SANYO

R3740-*1 1K

R3741-*1 1K

TU_IIC_ATSC_SANYO

R3740 1.2K

R3741 1.2K

TU_I2C_NON_FILTER

R3735 33

R3736 33

TU_SCL

TU_SDA

C3711 18pF 50V

C3713 18pF 50V

C3742 20pF 50V

C3743 20pF 50V TU_I2C_FILTER

TU_I2C_FILTER

BOOSTER : CHINA OPT

L3700 BOOSTER_OPT BLM18PG121SN1D

R3734 0 BOOSTER_OPT

R3743 10K BOOSTER_OPT

Q3701 ISA1530AC1 BOOSTER_OPT

R3737 2.2K

Q3702 2SC3052 BOOSTER_OPT

R3745 10K BOOSTER_OPT

FE_BOOSTER_CTL
LNA2_CTL

The pull-up/down of LNA2_CTL is depended on MODLE_OPT_1. GPIO must be added for FE_BOOSTER_CTL

C3709 0.01uF 25V BOOSTER_OPT

+5V_TU

R3755 470

R3758 82

TU_SIF

ISA1530AC1 Q3705

R3755 4.7K

+5V_TU

R3751 220

R3752 220

TU_CVBS

R3749 0

R3750 1K OPT

Q3703 ISA1530AC1

DEMOD_RESET

This was being applied to the only china demod, so this has to be deleted in both main and ISDB sh

+3.3V_TU

R3704 0 HALF_NIM

IF_AGC_MAIN

should be guarded by ground

R3742 4.7K FULL_NIM

R3744 4.7K FULL_NIM

DEMOD_SCL

DEMOD_SDA

C3712 22pF 50V FULL_NIM

C3714 22pF 50V FULL_NIM

FULL_NIM R3702 100

FULL_NIM R3701 100

close to IF line

HALF_NIM R3760 0

R3761 0 HALF_NIM

IF_N_MSTAR

IF_P_MSTAR

1. should be guarded by ground
2. No via on both of them
3. Signal Width >= 12mils
Signal to Signal Width = 12mils
Ground Width >= 24mils

Close to the tuner

FULL_NIM R3724 0 FE_TS_SYNC

FULL_NIM R3730 0 FE_TS_VAL_ERR

FULL_NIM R3731 0 FE_TS_CLK

FULL_NIM_CHINA R3725 0 FE_TS_DATA[0]

FULL_NIM R3727 0 FE_TS_DATA[1]

FULL_NIM R3728 0 FE_TS_DATA[2]

FULL_NIM R3729 0 FE_TS_DATA[3]

FULL_NIM R3726 0 FE_TS_DATA[4]

FULL_NIM R3721 0 FE_TS_DATA[5]

FULL_NIM R3722 0 FE_TS_DATA[6]

FULL_NIM_CHINA R3723 0 FE_TS_DATA[7]

Close to the CI Slot

R3706 0 FULL_NIM_BR

FE_TS_DATA[0-7]

TUNER MULTI-OPTION

GP1_ATSC_1INPUT_H_SANYO

TU3702-*1 TDVJ-H101F

TU3702-*3 UDATSAL

GP1_ATSC_1INPUT_H_LGIT

GP2R_AU_1INPUT_H_LGIT

TU3702-*4 TDTJ-S101D

NTSC_2INPUT_H_LGIT

TU3702-*2
TDTR-T036F

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LG ELECTRONICS

HALF_NIM_1.2V_BCD
IC3703
AZ1117BH-ADJTRE1

+3.3V_TU

INPUT 3 1 ADJ/GND

OUTPUT 2

R2 HALF_NIM R3767 10

+1.2V/+1.8V_TU

HALF_NIM R3768 1.2K R1

IC3703-*1
AP1117EG-13

IN OUT

ADJ/GND

HALF_NIM_1.2V_DIODES

R3703 150 OPT

HALF_NIM

R3766 1 1/10W

C3740 0.1uF 16V HALF_NIM

C3741 10uF 10V HALF_NIM

Please, check multi Item! 10/12

IC3701
AP2132MP-2.5TRG1

FULL_NIM_BCD

R3748-*1 10K

+1.2V/+1.8V_TU 380mA

C3717 0.1uF 16V

R3771 10K FULL_NIM_BCD

R3770 10K FULL_NIM_SEMTEK

R3769 10K FULL_NIM_BCD

PG GND EN ADJ VIN VOUT VCTRL NC

THERMAL 9

FULL_NIM_SEMTEK

R3748 5.1K R1

R3747 9.1K 1005 R2

Vo=0.8*(1+R1/R2)

R3764 0 1/10W FULL_NIM

FULL_NIM C3729 0.1uF 16V

FULL_NIM C3730 10uF 10V

+5V_Normal

FULL_NIM_BCD L3704

IC3701-*1
SC4215ISTRT

NC_1 FULL_NIM_SEMTEK GND EN ADJ VIN VO NC_2 NC_3

+5V_TU

200mA

Size change L3702

MLB-201209-0120P-N2

C3719 22uF 10V

C3724 0.1uF 16V

C3722 22uF 16V

C3726 0.1uF 16V

location movement,0929

+5V_Normal

60mA

+3.3V_TU

Size change L3703

MLB-201209-0120P-N2

C3723 22uF 10V

C3725 0.1uF 16V

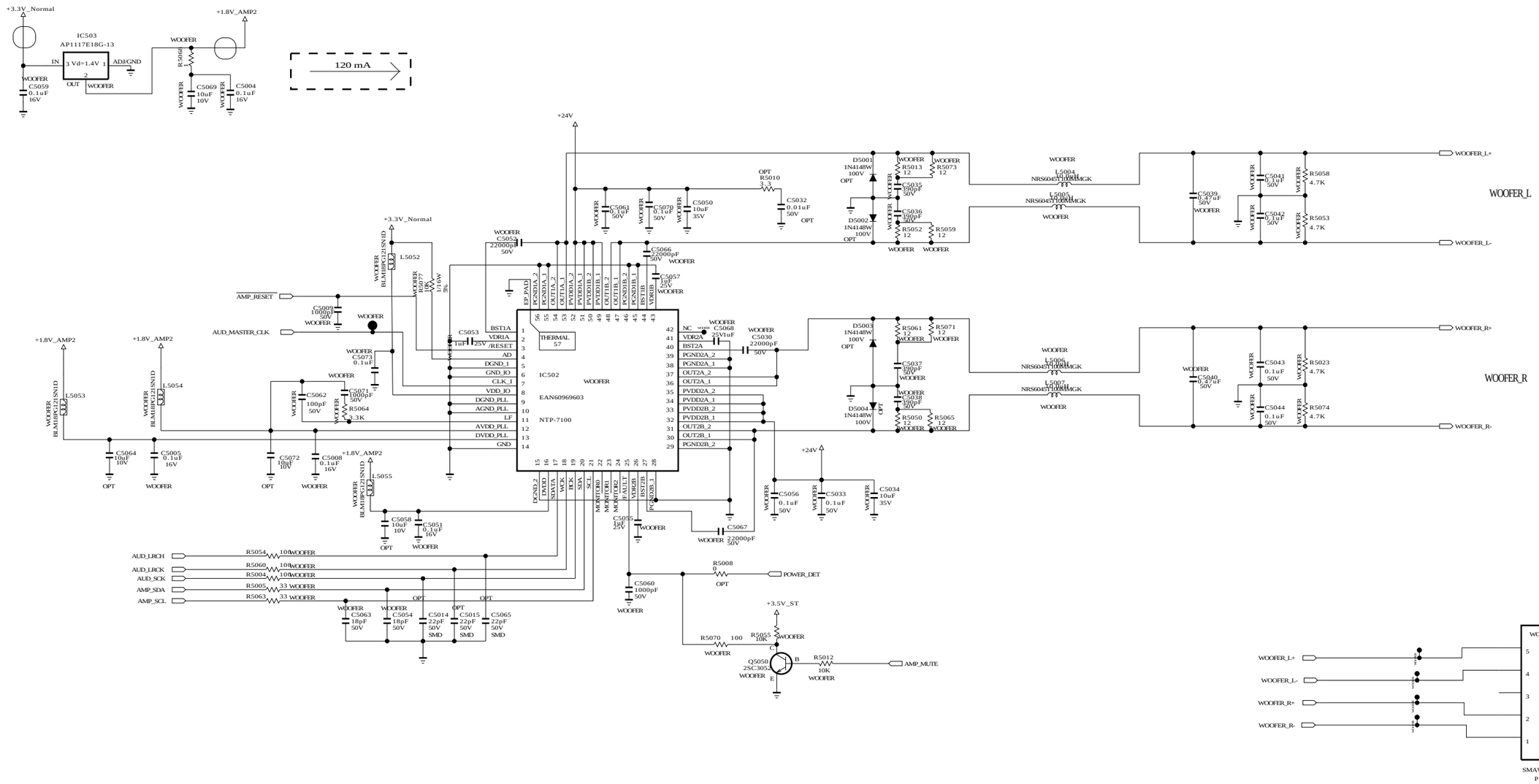
C3715 22uF 10V

C3727 0.1uF 16V

Add,0929

MODEL	GP2R	DATE	20101023
BLOCK	TUNER_L	SHEET	14

WOOFER AMP



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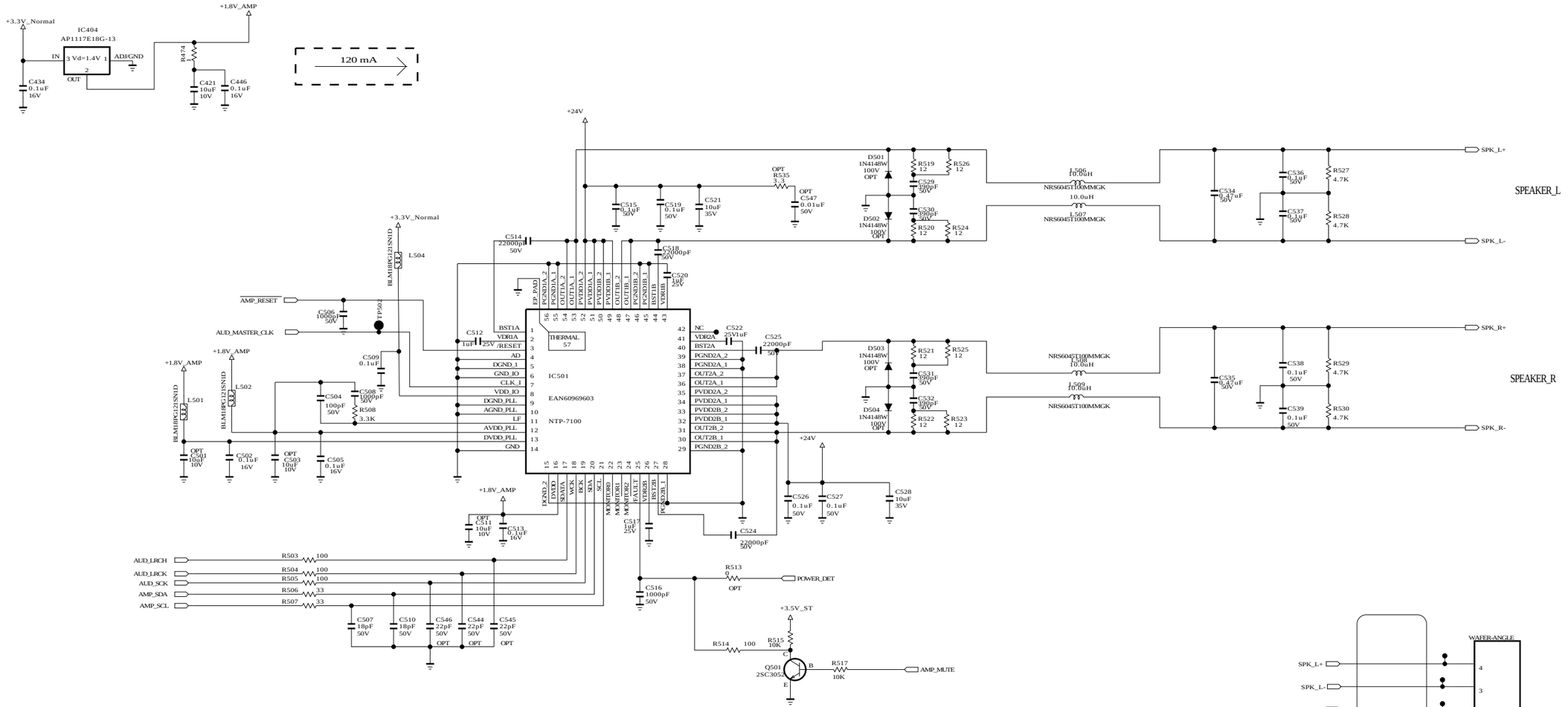
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	WOOFER NTP	SHEET	15 /



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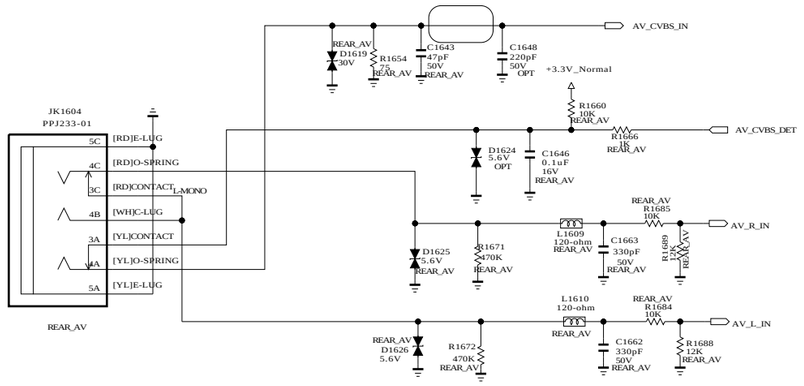
SECRET

LGElectronics

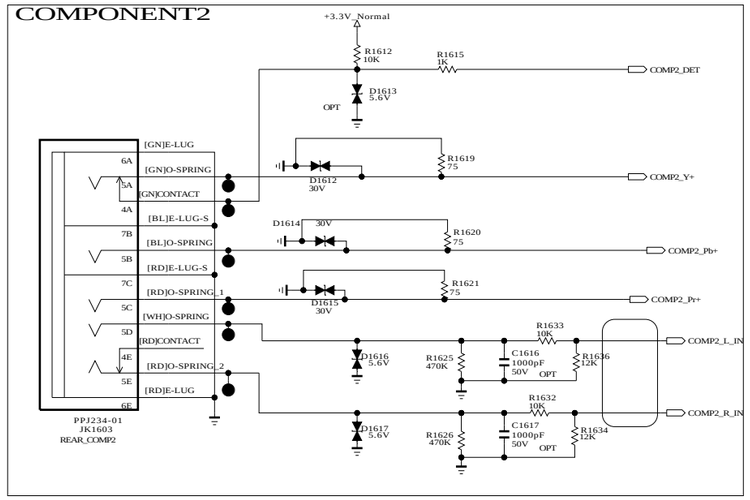
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	AMP NTP	SHEET	16

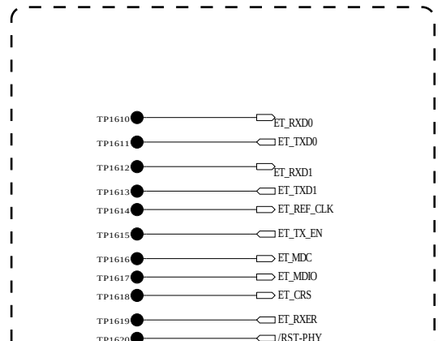
Rear AV

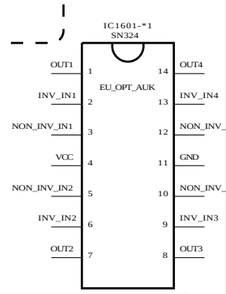


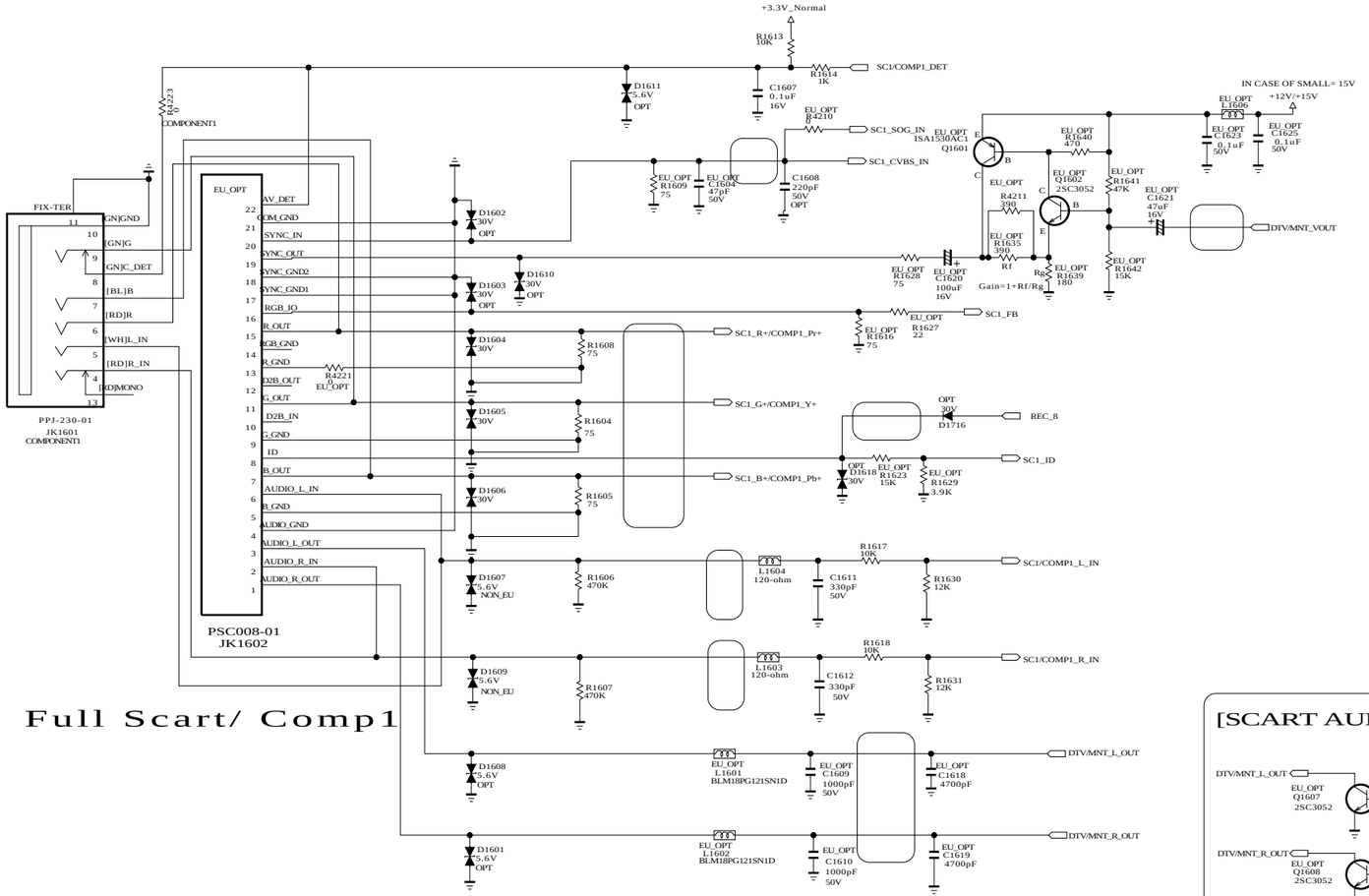
COMPONENT2



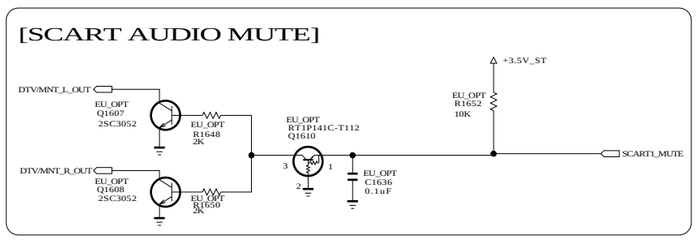
ETHERNET FOR DVB_T2

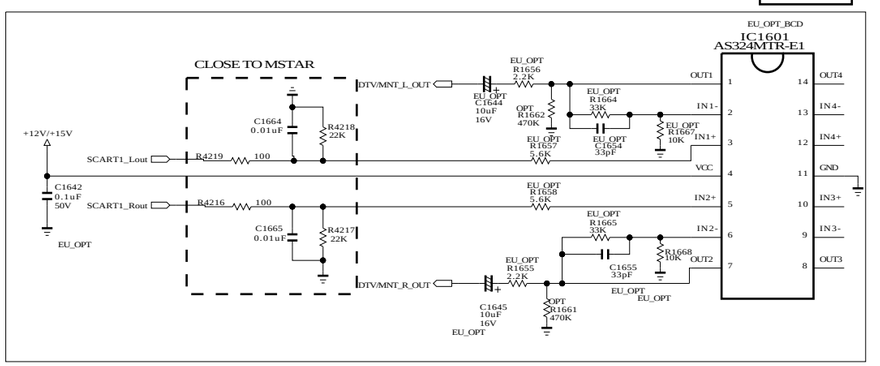


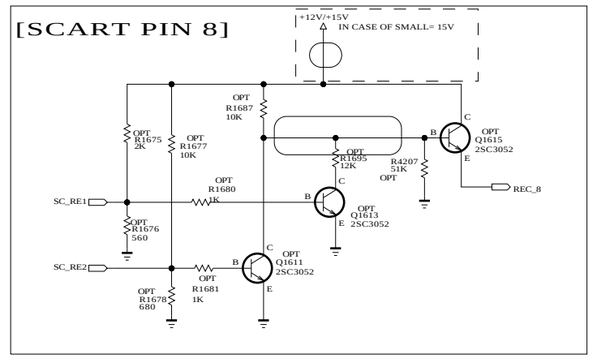




Full Scart/ Comp1







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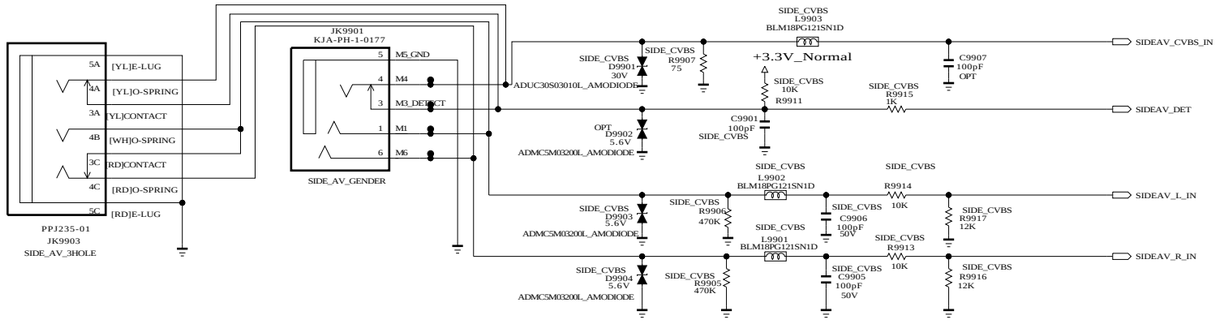
SECRET

LGElectronics

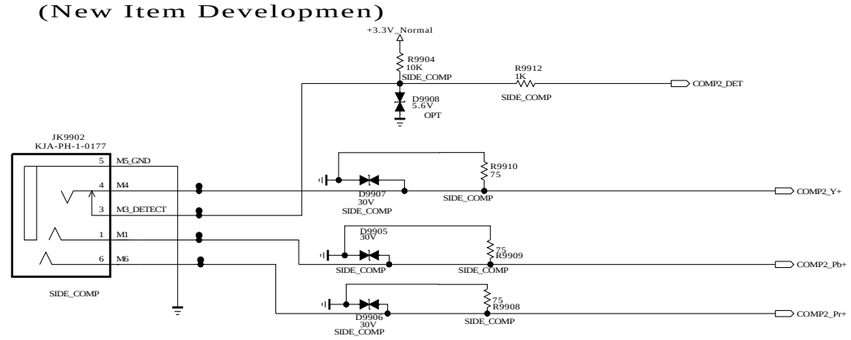
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	REAR JACK	SHEET	17 /

SIDE CVBS PHONE JACK
(New Item Development)



SIDE COMPONENT PHONE JACK
(New Item Developmen)



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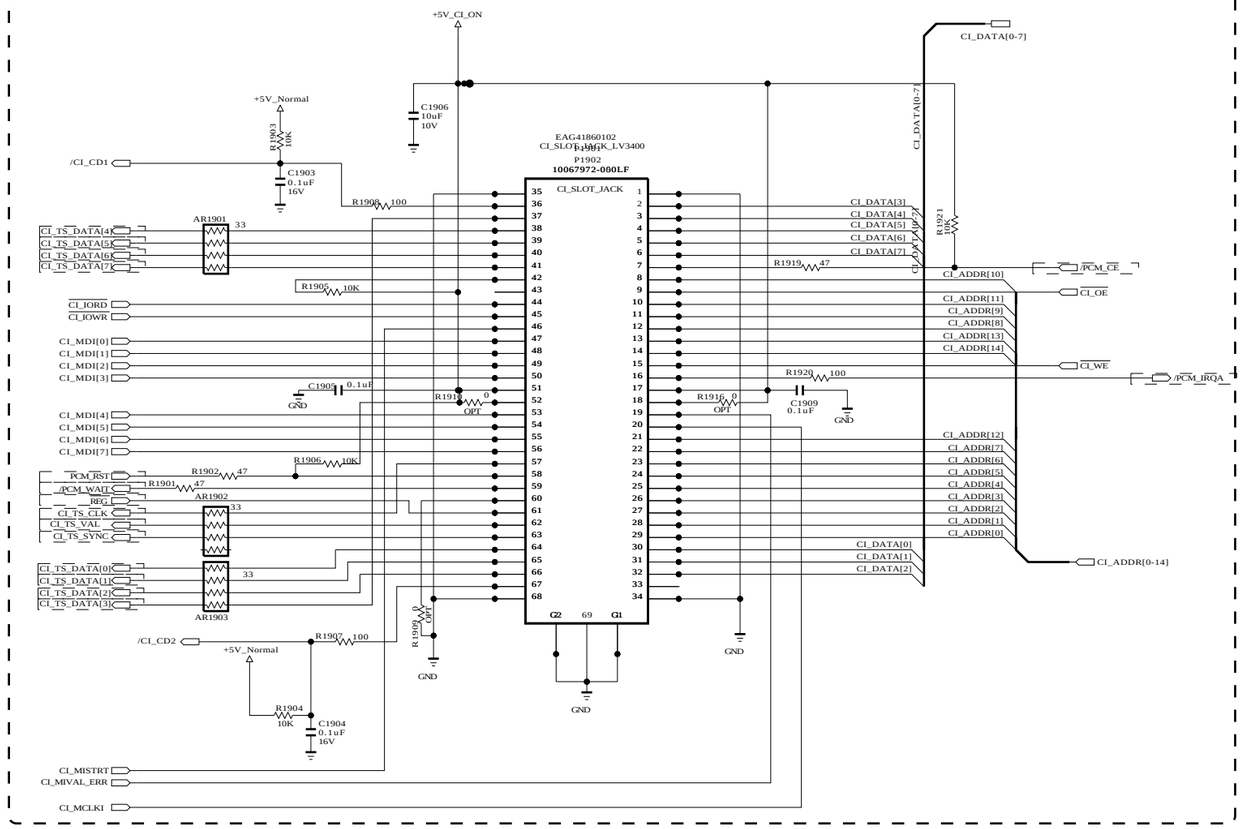
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	SIDE_JACK	SHEET	18 /

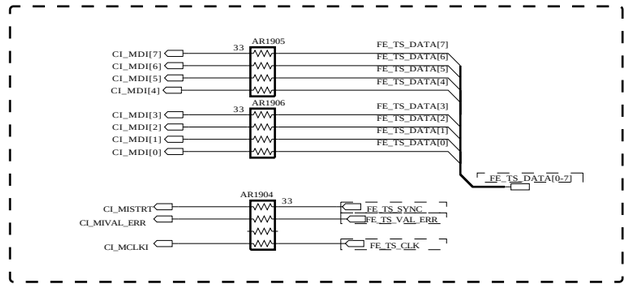
CI Region

* Option name of this page : CI_SLOT (because of Hong Kong)

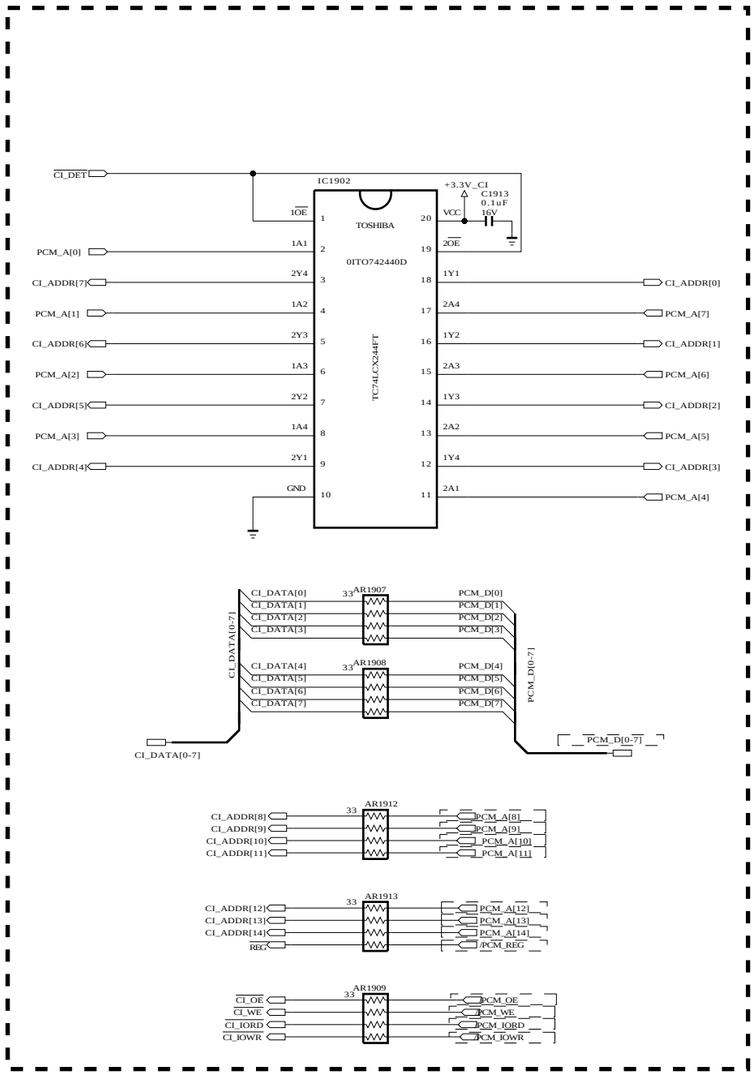
CI SLOT

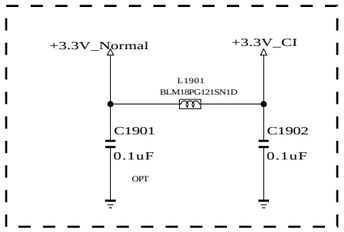


CI TS INPUT

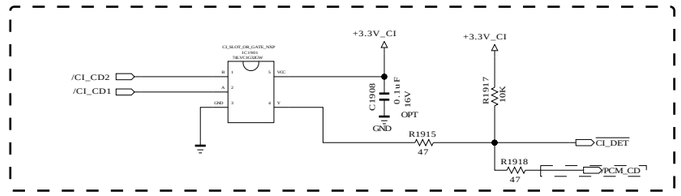


CI HOST I/F

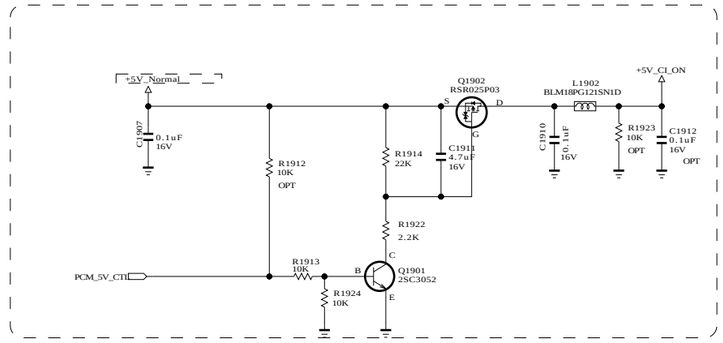




CI DETECT



CI POWER ENABLE CONTROL



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SECRET

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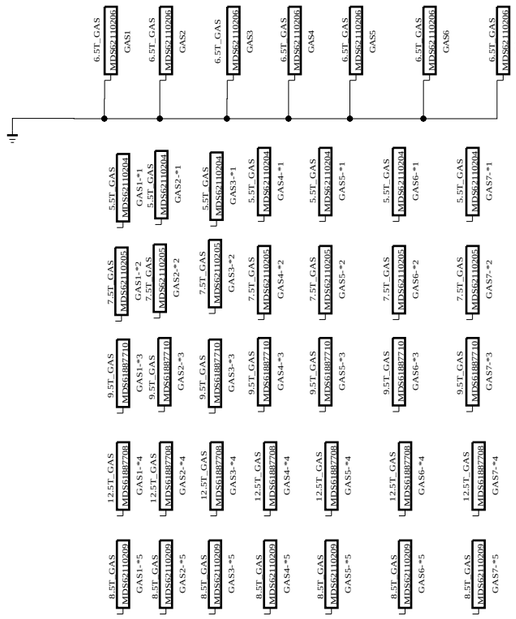
LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	PCMCI	SHEET	20 /

SMD GASKET



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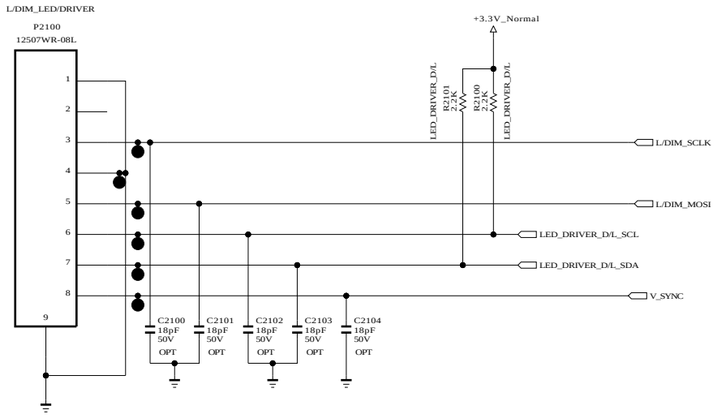
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP2R	DATE	20101023
BLOCK	SMD_GAS	SHEET	20 /



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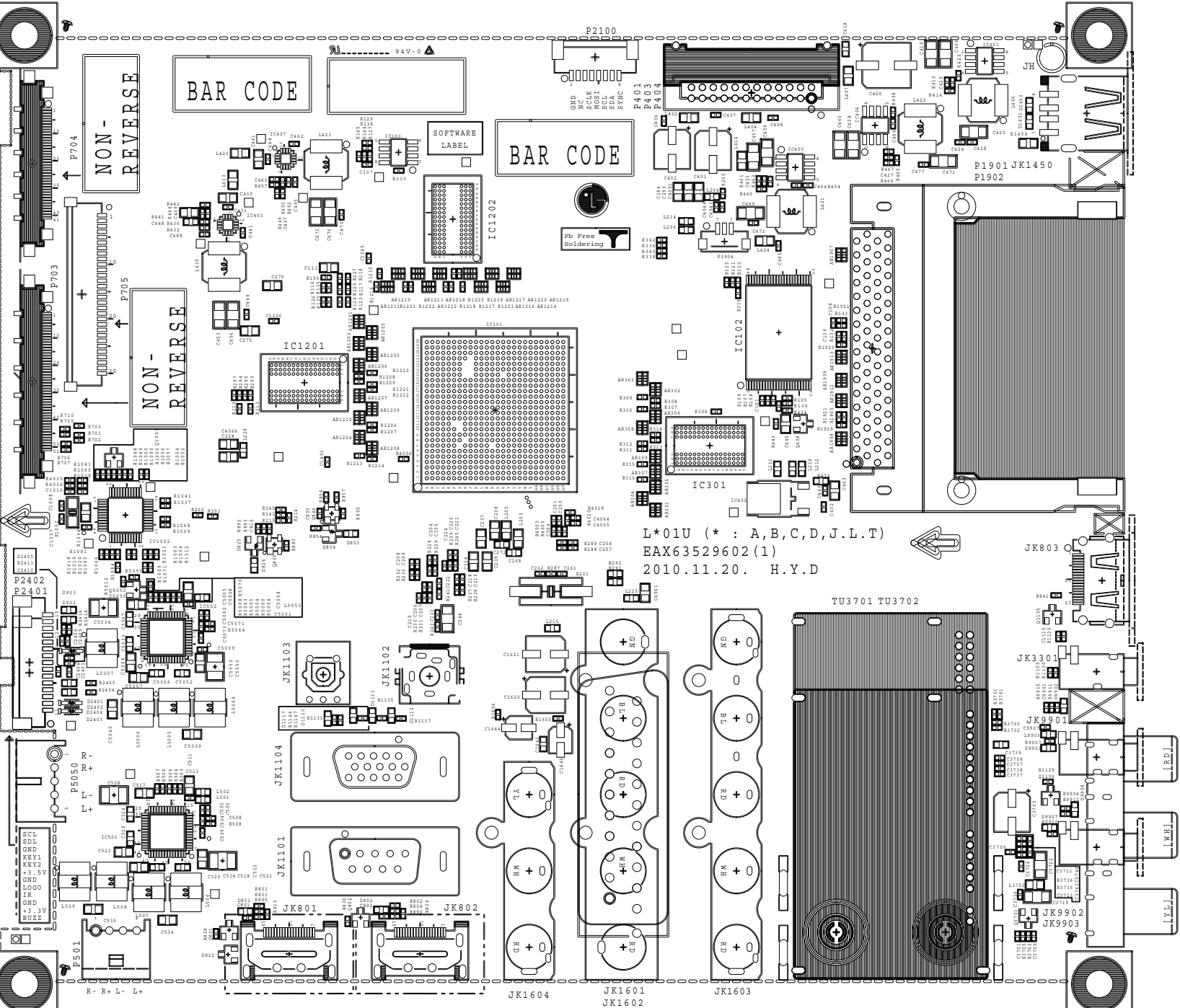
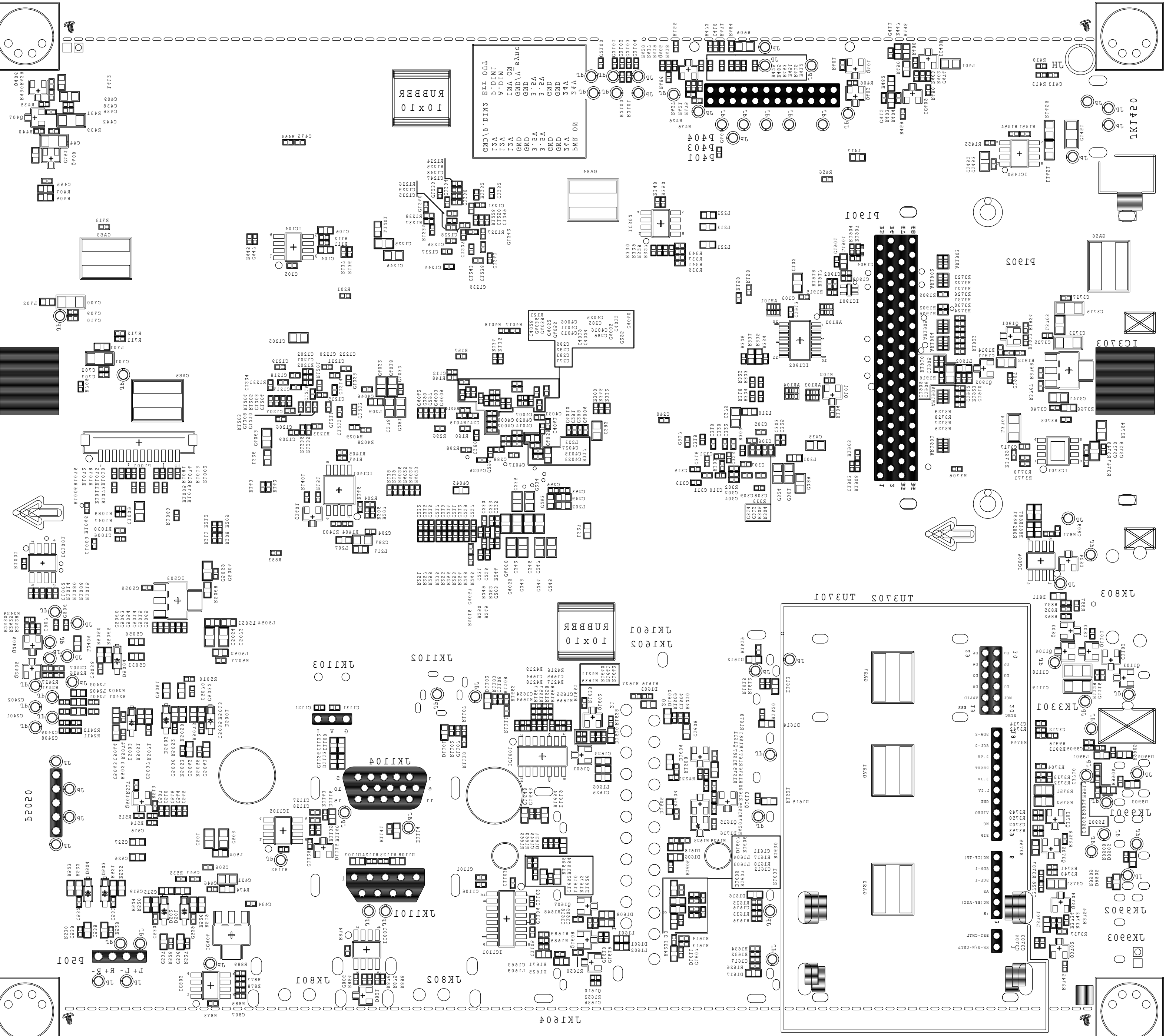
SECRET

LGElectronics

LG ELECTRONICS

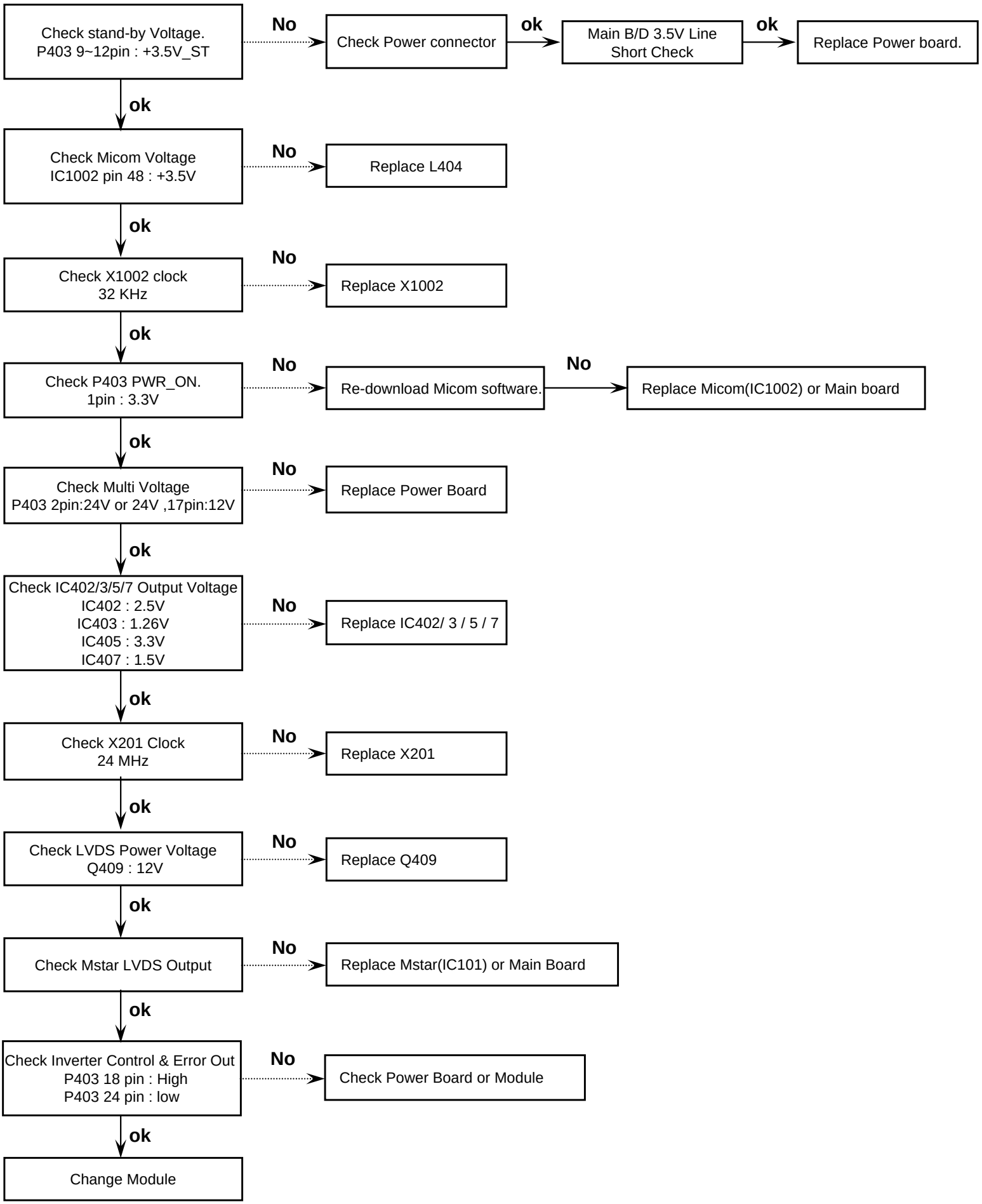
MODEL	GP2R	DATE	20101023
BLOCK	L/DIM_LED	SHEET	21


P2100
BAR CODE
BAR CODE
SOFTWARE LABEL
NON-REVERSE
NON-REVERSE
P704
P703
P705
IC1201
IC1202
IC101
IC1102
IC301
P1901 JK1450
P1902
Pb Free Soldering
L*01U (* : A,B,C,D,J.L.T)
EAX63529602(1)
2010.11.20. H.Y.D
JK803
JK3301
JK9901
JK9902
JK9903
JK1103
JK1102
JK1104
JK1101
JK801
JK802
JK1604
JK1601
JK1602
JK1603
P5050
P5501
P2401
P2402
TU3701 TU3702
SCL
SDL
GND
KEY1
KEY2
+3.5V
GND
LOGO
IR
GND
+3.3V
BUZZ
R- R+ L- L+

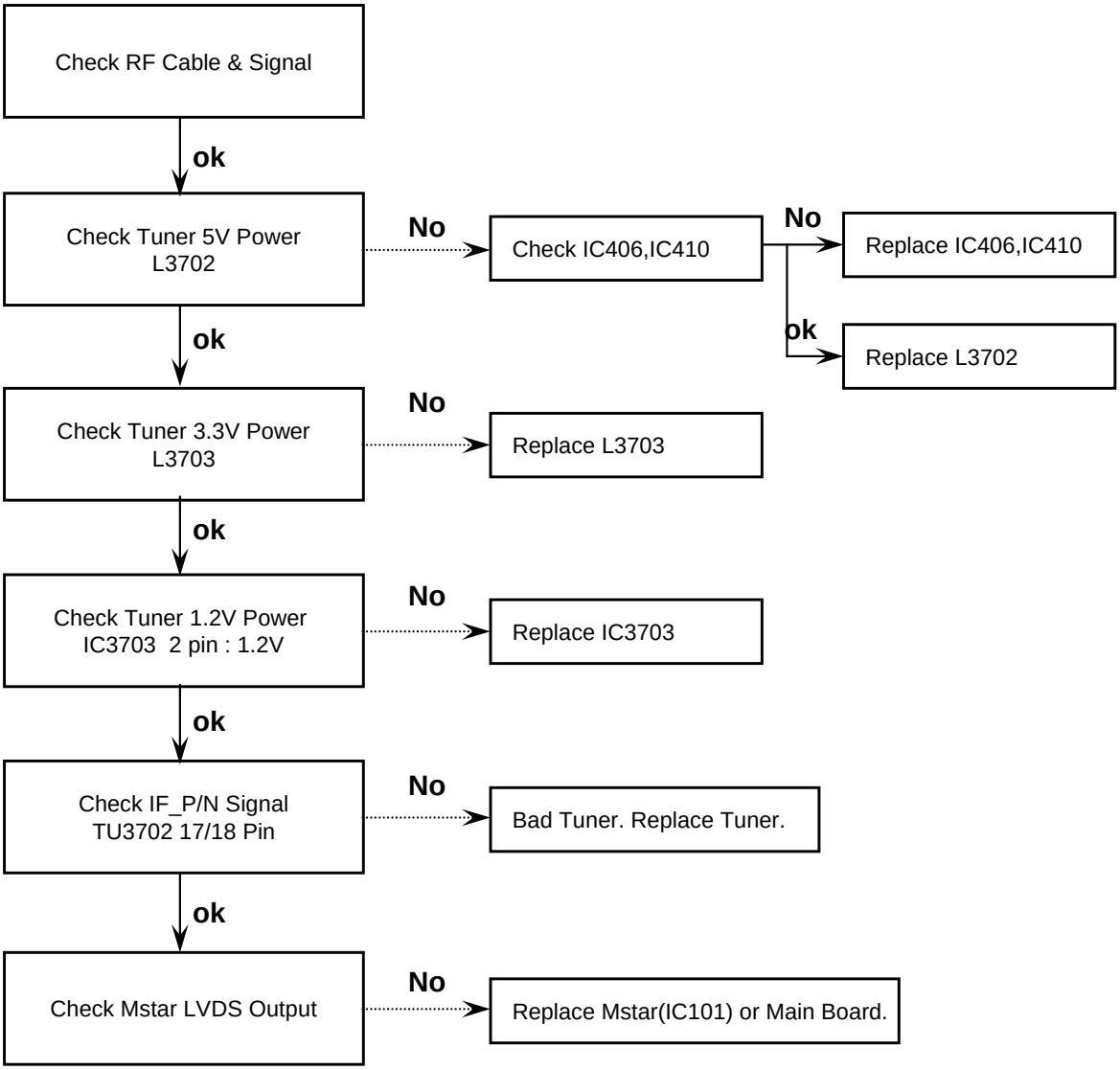



LG Electronics Inc.

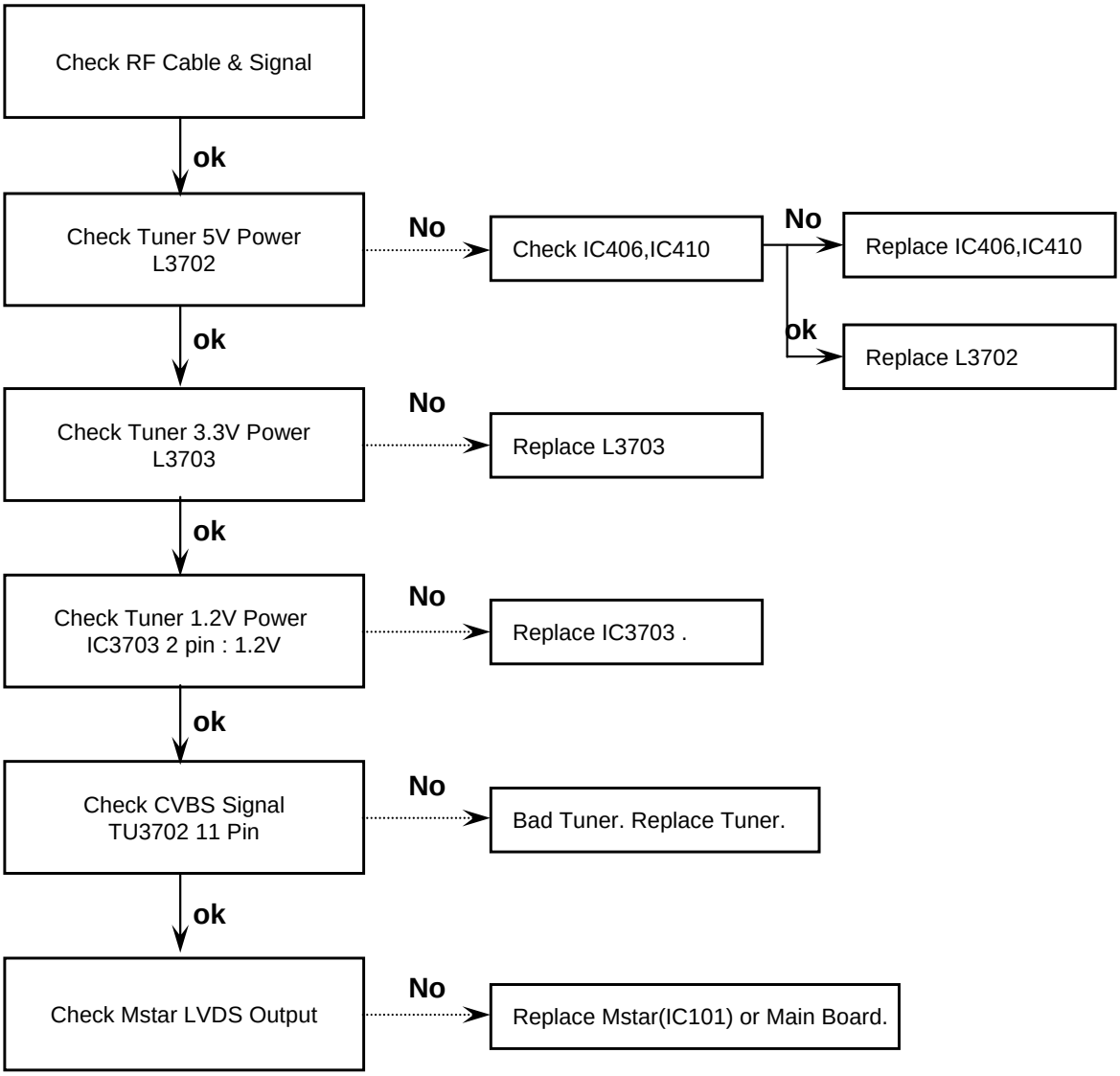
1. Power-up boot check



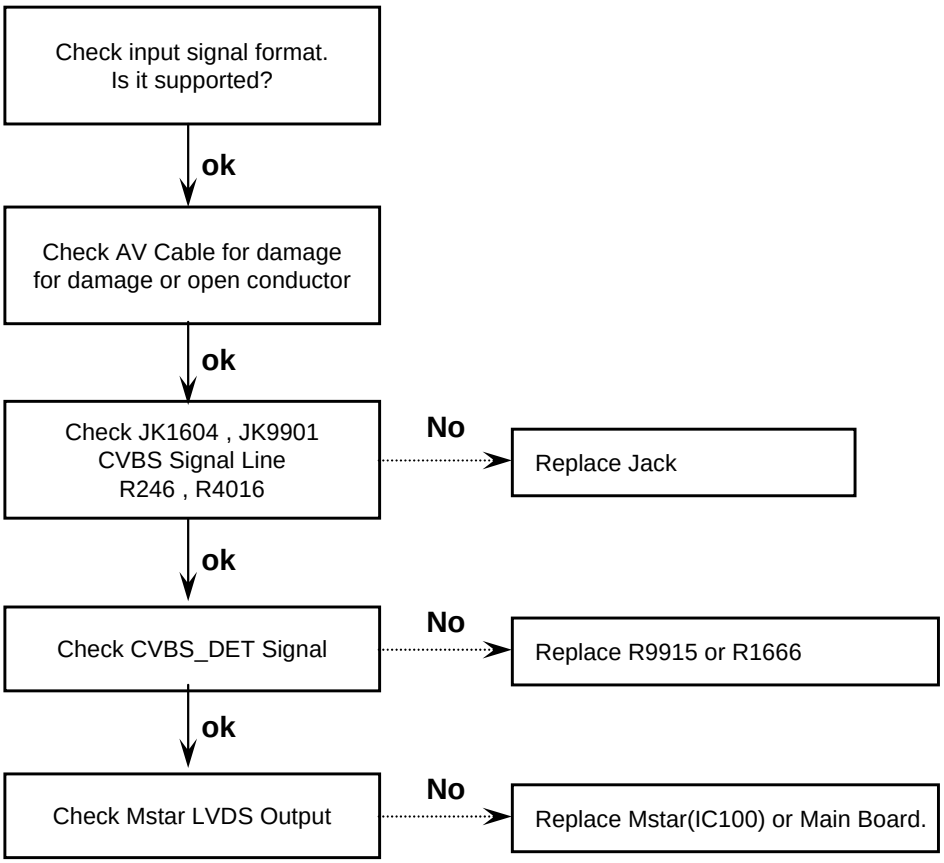
2. Digital TV Video



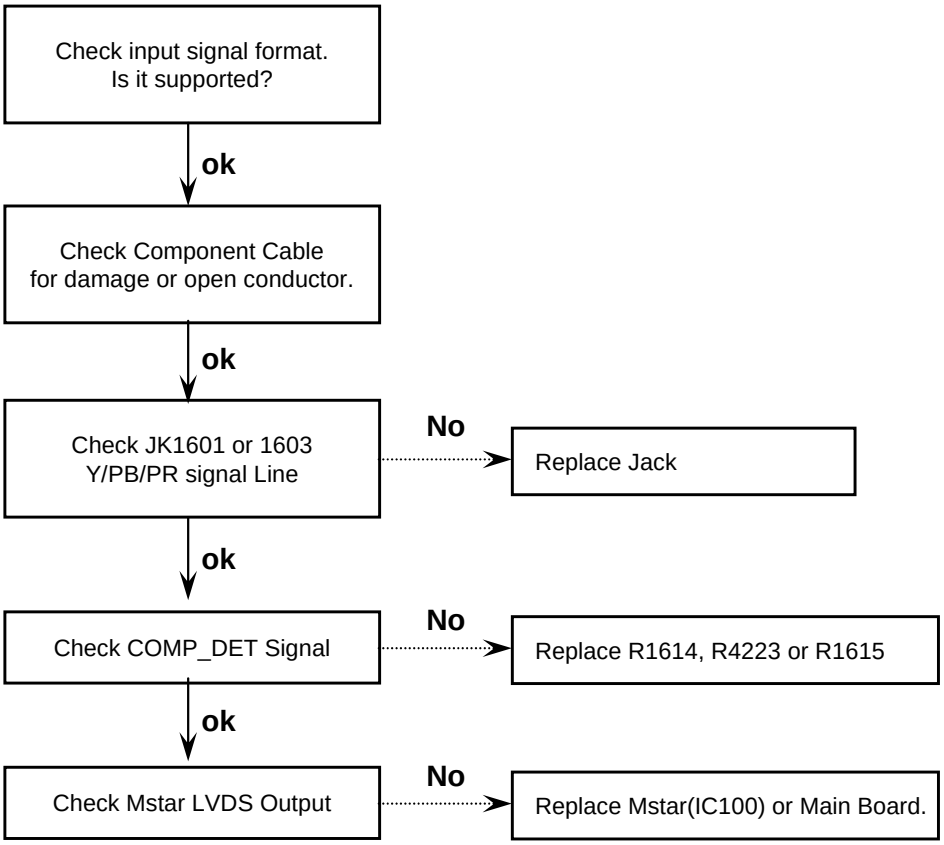
3. Analog TV Video



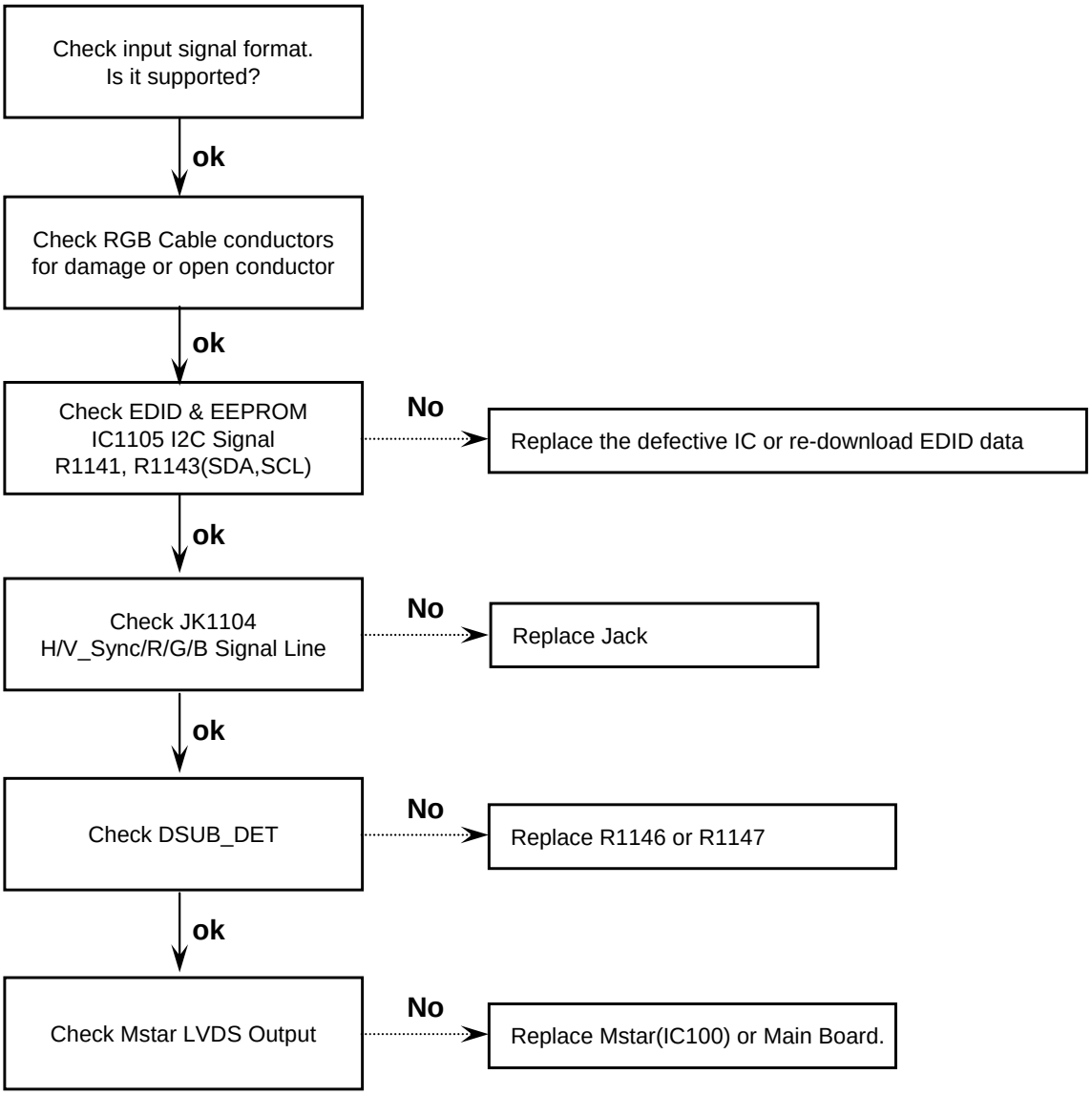
4. AV Video



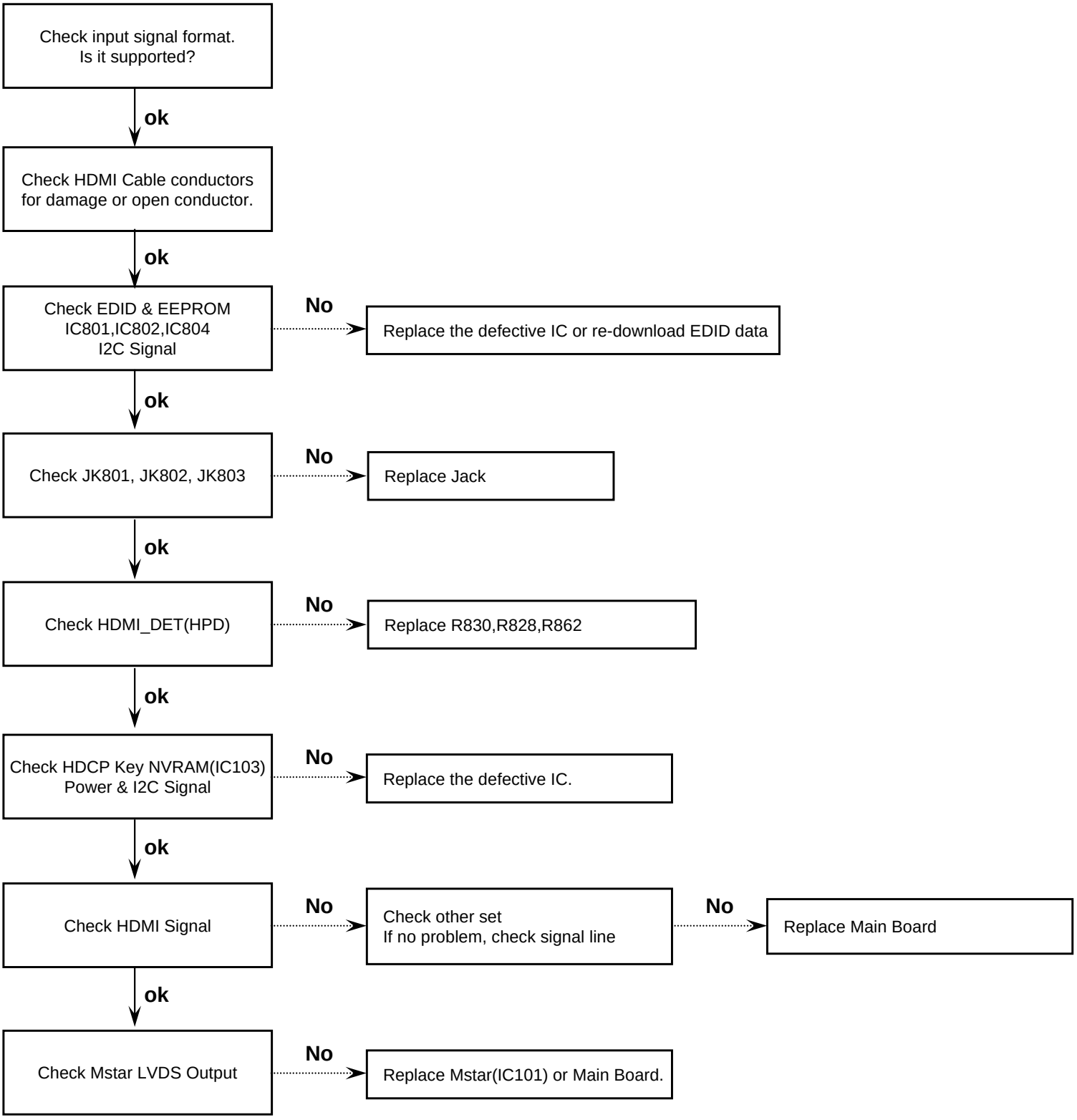
5. Component Video



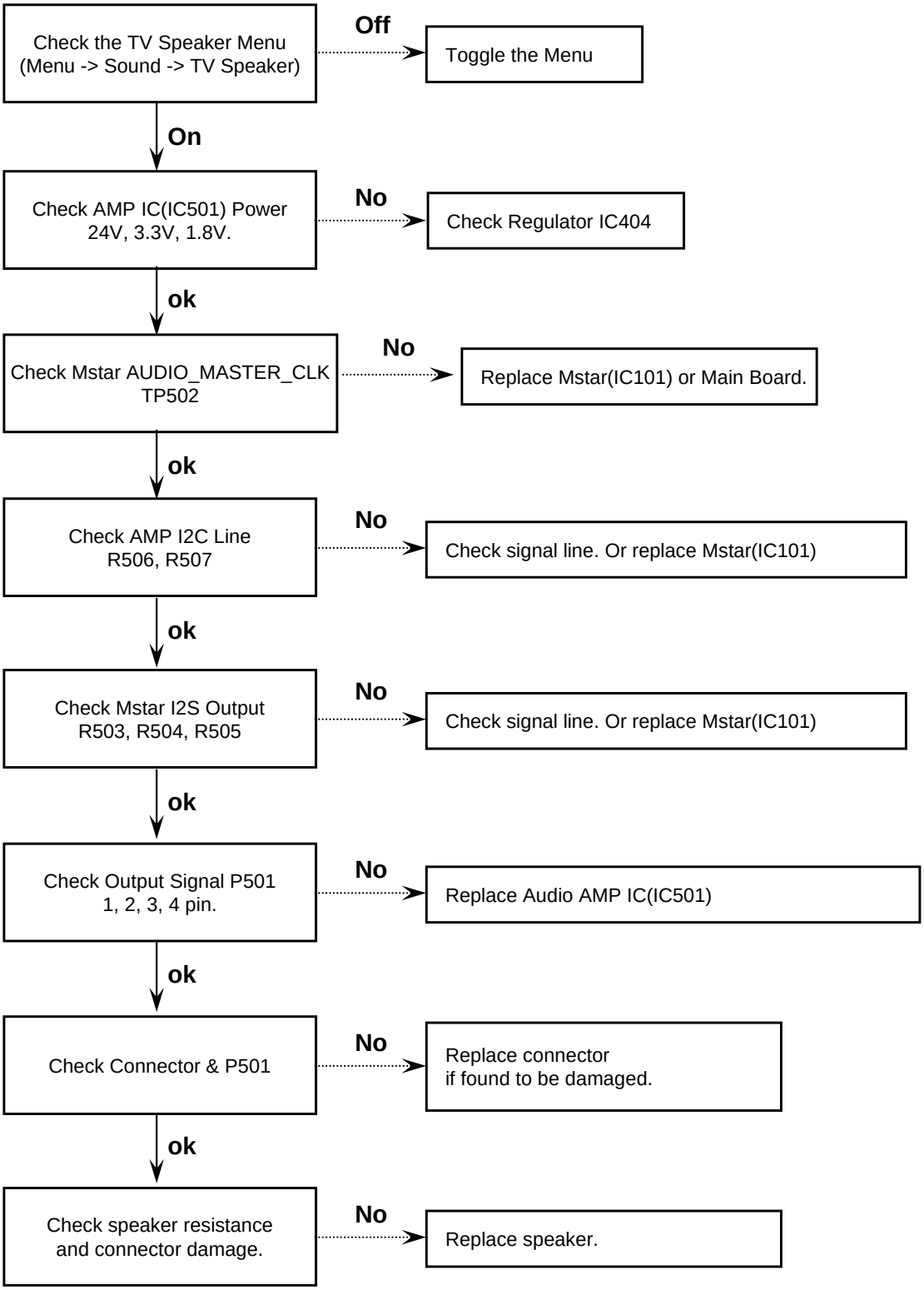
6. RGB Video



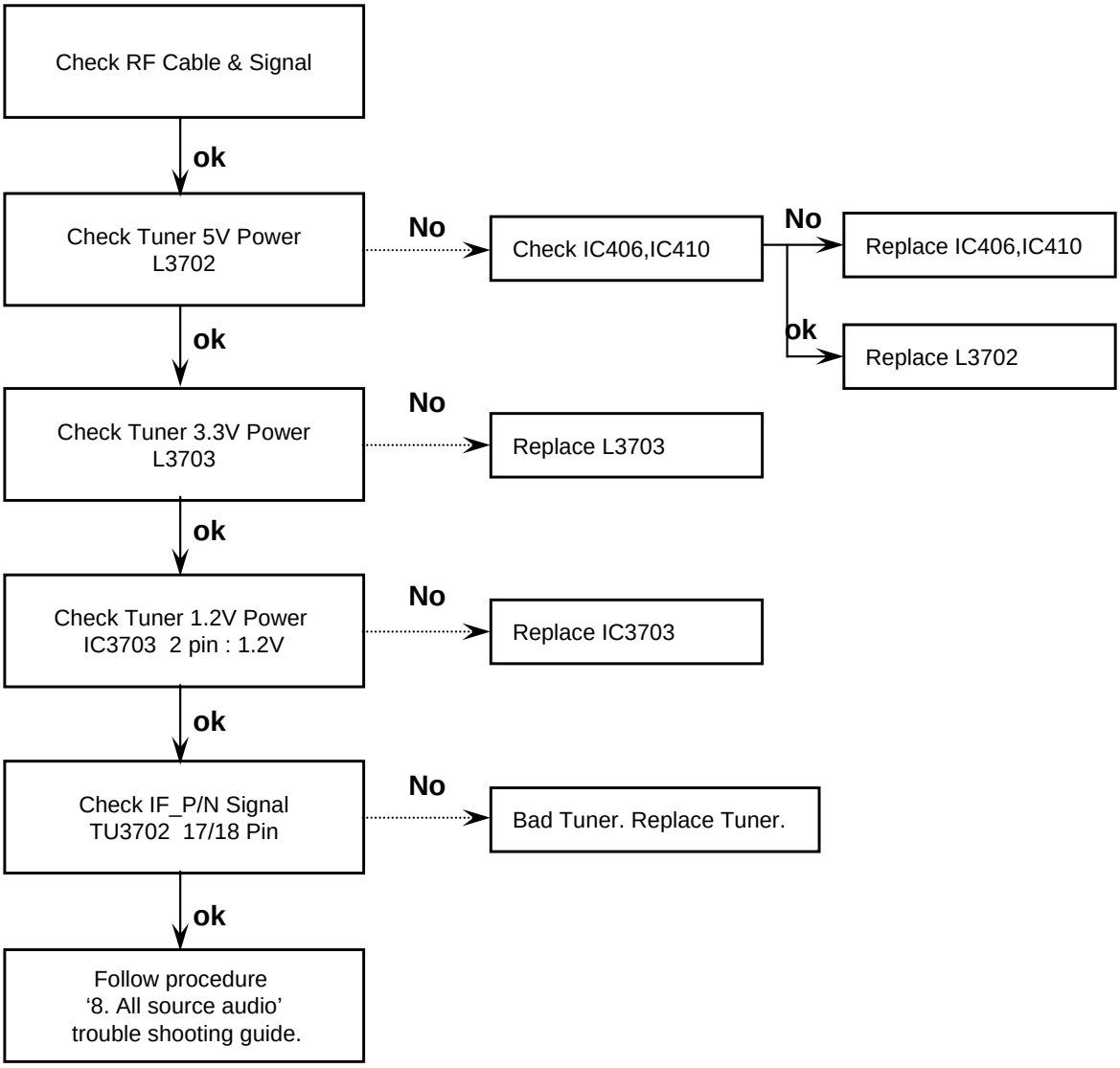
7. HDMI Video



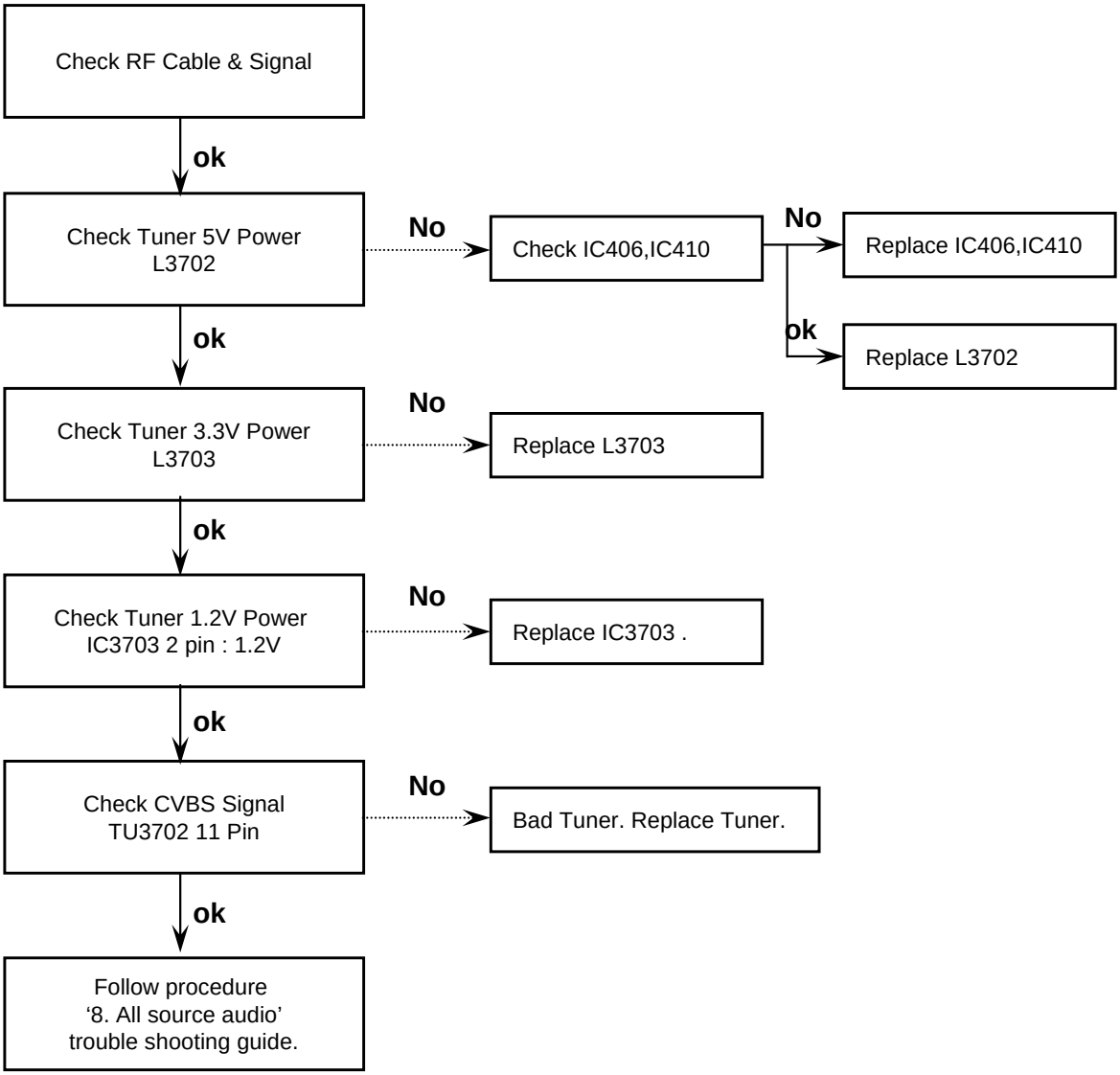
8. All Source Audio



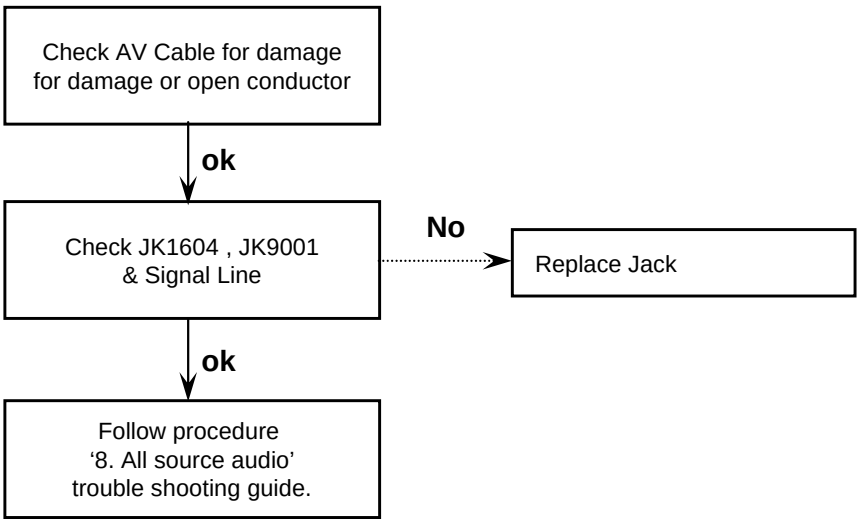
9. Digital TV Audio



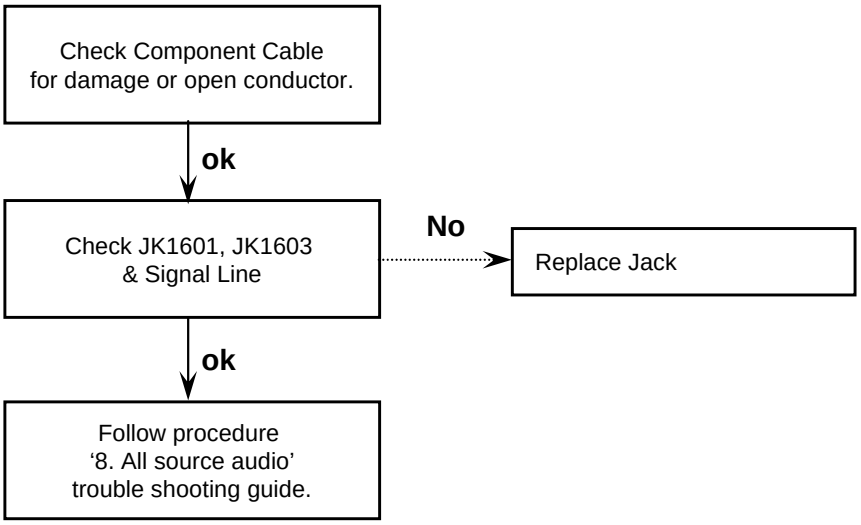
10. Analog TV Audio



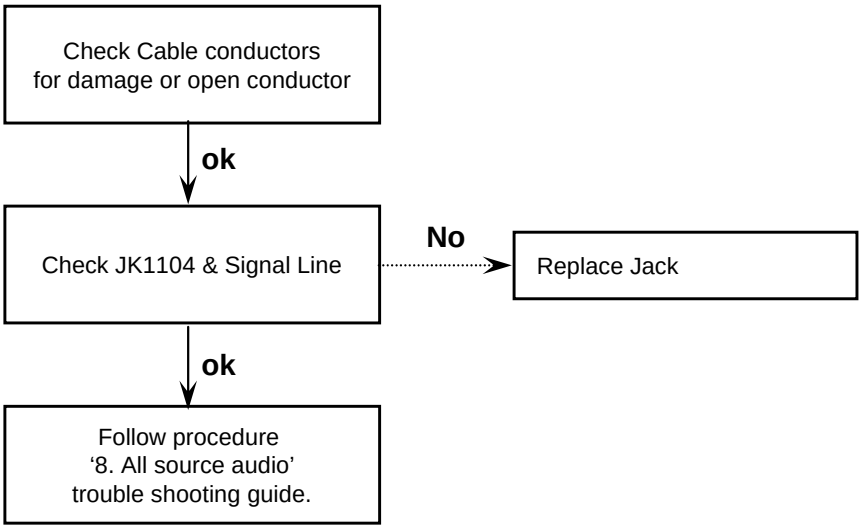
11. AV Audio



12. Component Audio

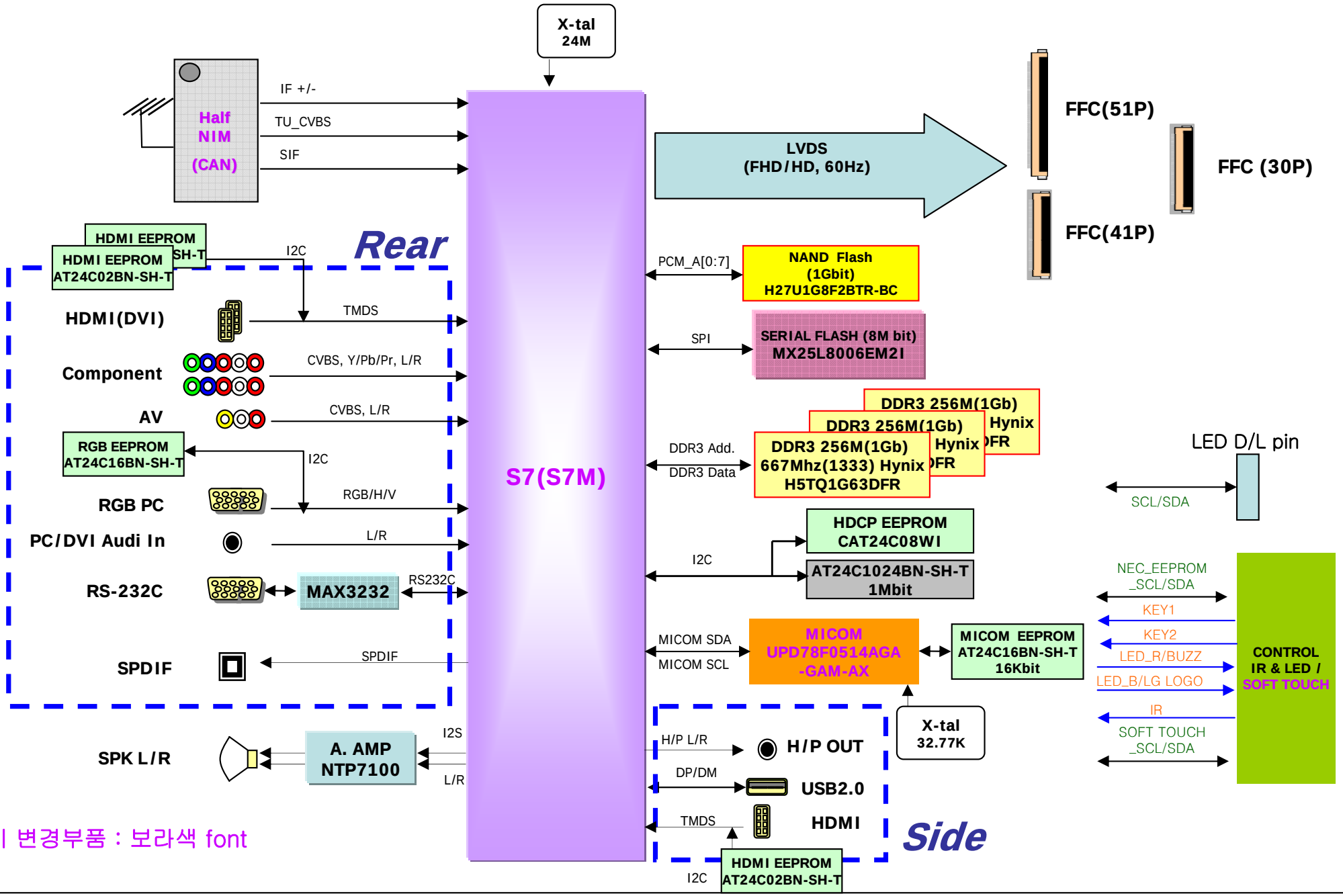


13. RGB Audio



GP3 Carry Over 모델 Block Diagram

LG Electronics/ LCD TV 연구소
연구 1실 / AT1 그룹



※ GP2 대비 변경부품 : 보라색 font